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CONTENTS

	PAGE
Editorial Notes	437
Transport Integration and Charges	439
A Loan for Rhodesia Railways	439
American Locomotive Practice	439
Post-War Building Activities of the German Railways	440
Letters to the Editor	442
The Scrap Heap	444
Overseas Railway Affairs—South Africa—Rhodesia—Argentina—Israel—Germany—Hungary	445
Reconstruction of Villeneuve-St. Georges Yard, French National Railways	447
Bridge Renewal at Stamford Brook, London Transport	448
4-6-0 Locomotives for Mewar State Railways	450
Modernisation of Euston Staff Dining Club	452
Personal	455
Sir Cyril Hurcomb on Integration of Transport	457
Relative Merits of Steam, Electric, and Diesel Traction	458
Staff & Labour Matters	459
Mr. Bulleid's Views on Irish Railway Potentialities	460
British Railways Freight Services	461
Notes and News	462
Railway Stock Market and Table	464

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THE RAILWAY GAZETTE
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National Minimum Wage Conflict

THE proposal for a minimum wage of £5 a week put forward by the National Union of Railwaymen has had wide repercussions. If such a step were taken it could hardly be confined to one class of workers, and this consideration has led to suggestions that the Government has in mind some form of national minimum wage, probably of about the figure claimed by the N.U.R. Those calling for a minimum wage have tended to disregard one important factor. This is, that in general, over the past ten years, wage rates have risen by as much as the cost of living, and average weekly earnings, which, after all, are what matter in the end to the working class family, by a good deal more. The railwaymen have based their argument largely on the fact that the wage rate of grade 2 porters is 92s. 6d. a week, but the Railway Executive has pointed out that the average weekly earnings of these men amount to 112s. 7d. In strict logic, if pay is to be based on humanitarian considerations, there is a case for making any sectional or national minimum apply to earnings and not to wage rates. On the other hand, it must not be overlooked that any minimum tends towards making pay independent of output, and destroys a vital link between a man's work and his pay, which at the moment is of primary importance if productivity is to be increased.

* * * *

Conciliation Board Criticised

We referred last week to the acceptance by the special delegate conference of the N.U.R. of the findings of the Board of Conciliation which flatly rejected the union claim for a wage increase of 10s. a week. There remained no reasonable alternative as it was made quite clear before the inquiry began that acceptance of the recommendations would be binding on all parties to the dispute. Since then, however, there has been much criticism of the Board, chief critic being Mr. J. B. Figgins, General Secretary, N.U.R., who, through the official organ of the union, attacks those responsible for handling the inquiry and suggests that "those who made these recommendations did not understand railway work." This article by Mr. Figgins in the October 7 issue of *The Railway Review* is quoted in full on page 459. Also, at Manchester on October 9, members of the N.U.R. district council passed a resolution demanding that the executive of the N.U.R. should boycott future negotiating machinery with which Sir John Forster, Chairman of the Conciliation Board, is concerned.

* * * *

International Timetable Conference

The International Timetable & Through Carriage Conference, which has been meeting at Brighton since October 5, is ending with this week. The proceedings have been marked by a harmony which for many years has distinguished this gathering of practical railwaymen from other international conferences. One of the main reasons for this, perhaps, has been that the objective of the Timetable Conference is to provide services beneficial to many countries, rather than seek advantages for individual States. On Wednesday last, delegates and guests were entertained to dinner by British Railways, who are the hosts on this occasion. The principal speakers were Mr. Alfred Barnes, Minister of Transport, Sir Cyril Hurcomb, Chairman of the British Transport Commission, Sir Eustace Missenden, Chairman of the Railway Executive, Monsieur Lucchini, of the Swiss Federal Railways, and the Mayor of Brighton. A report of the proceedings will be published in our next week's issue, when details will also be given of the timetable arrangements made as a result of the Conference.

* * * *

British Railway Equipment for South Africa

The last few of the 100 Class "24" 2-8-4 locomotives built by the North British Locomotive Co. Ltd. for the South African Railways, and described in our May 27 issue, will have been shipped by the end of this month, bringing up to nearly 500 the total of locomotives which British manufacturers have supplied to South Africa since 1944. This total includes steam and electric locomotives for mixed traffic

duties on both main and branch lines. The size of these orders has been dictated by the heavy arrears of replacements which could not be made up during the war. Goods wagons already supplied by a British firm total 1,200 and of a further 1,500 ordered, 510 have been shipped. There have been orders for 431 coaches for electric and steam trains, of which 300 remain to be shipped. The total value of these locomotive and rolling stock contracts is well over £22,000,000. In addition, large quantities of rails and sleepers have been exported from this country to South Africa. The shipment of these substantial cargoes requires much forethought; the Class "24" locomotives have been carried by the commodious Clan Line ships. It seems probable that the South African Railways will need to place still further orders for locomotives in Great Britain.

* * * *

Overseas Railway Traffics

As a result of a further setback in gross earnings and a considerable rise in working expenses, Canadian Pacific net revenue during August fell by £78,750 to £399,500. Gross earnings of £7,719,000 compared with £7,735,500 last year and working expenses at £7,319,500 were higher by £62,250. Canadian National net revenue at £262,250 for the month, was £194,750 better than for 1948, with a £545,750 advance in operating revenues offsetting the £351,000 increase in expenses. On the aggregate, however, C.N.R. net earnings are still £164,500 below those for the equivalent period last year and C.P.R. are £693,500 higher. C.N.R. net earnings for the current 35 weeks are £598,750 and operating revenues are £80,200,500; C.P.R. net earnings are £1,572,000, with gross earnings at £58,840,750. During August, Gold Coast traffics made a £101,174 advance to £258,530 and receipts for the current 22 weeks are now £173,678 higher, at £1,192,125. A $26,568 improvement to $1,023,467 was made in International Railways of Central America August traffics, but on the aggregate receipts are still $568,351 lower at $8,601,268.

* * * *

Improved Railway Freight Services

Last year British Railways restored or inaugurated express freight services to the number of 316. The end of 1948 saw 492 such services in operation and since then the number has been further increased to 555. This brings the present total to 16 more than in 1939. In addition 971 other freight services (495 in 1948 and 476 in 1949) have been speeded up. Other details of progress in the restoration of railway freight services, with current plans for still further improving them, were given at a press conference presided over by Mr. David Blee, Commercial Member of the Railway Executive, on October 11. From the statements then made, which are reported in other pages, sufficient information was forthcoming to show that very substantial progress has been made in modernising rolling stock and in continuing the work begun by the former railway companies in mechanising terminals and equipment, while to offset the danger of unification of the railways resulting in a loss of the personal business touch, efforts are being made in the reorganisation of the District Commercial Offices to simplify the facilities for direct sales contacts. Another encouraging feature has been the success of the schemes adopted to reduce pilferage.

* * * *

British Locomotives for Export Markets

The strong position which the British builders of locomotives have achieved in world export markets lends particular interest to an article in the current issue of the *Board of Trade Journal*. This has been contributed by Mr. John W. Vaughan, O.B.E., Director of the Locomotive Manufacturers' Association of Great Britain, and explains in some detail the means by which the British builders have developed and maintained their prestige among overseas railway administrations. He rightly emphasises that one characteristic of British built locomotives all over the world is comprised in the term "workmanship." The British industry, because of its long and varied experience, although it always welcomes and endeavours to fill the specified requirements of the local locomotive man, is frequently able to advise as to the incorporation of features which have been tested in other markets. Full co-operation between the manufacturer and the man on the spot enables latest designs to be wedded to features required by local conditions. The article outlines modern trends in steam, electric, diesel-electric, diesel-mechanical, and gas-turbine locomotive design, especially applicable to overseas conditions.

* * * *

Importance of the Steam Locomotive to Rail Transport

A tribute to the work of the steam locomotive during the war has been paid by Mr. Harold Rudgard, Chief Officer (Motive Power), Railway Executive, in a recent paper to the Institute of Transport, Metropolitan Section, further reference to which is made elsewhere in this issue. By 1939, he points out, steam locomotive practice had attained the high standard that was to stand it in such good stead during the war years, when the rail transport war effort was fully maintained; locomotive availability increased from sheer necessity, and the interval between routine examinations was extended to improve utilisation. The end of hostilities had brought about a reaction from which we had only partially recovered, but the steam locomotive had added to its laurels by an outstanding effort in time of need. Although the prophesied decline of the steam locomotive in favour of electrification had, so far, failed to materialise, a new rival had appeared in the form of the compression-ignition engine combined with electric transmission. This had been amplified by the recent whirlwind of dieselisation in the U.S.A., though the simplicity and low initial cost of the direct-driven reciprocating locomotive still made it the most efficient source of rail motive power in this country. To maintain this position, the steam locomotive had to increase its daily revenue-earning hours, and the time spent in preparation, disposal and maintenance was the chief problem of motive power departments.

* * * *

Future Tendencies in Motive Power

Commenting on electrification, Mr. Rudgard said that for suburban working with multiple-unit trains its supremacy was not to be denied. However, the electrification of main lines with locomotive-hauled trains presented a different problem to suburban electrification, and in this direction very little had been done in Great Britain. In the case of electrified main lines no increase in traffic could be expected and justification must rest on the economies in working expenses, as compared with steam traction. The combustion turbine locomotive was still in the embryo stage and had not yet been tried out in Great Britain, though, with the use of gasified coal, a natural product of this country, Mr. Rudgard thought this type of power may have great possibilities. Looking at the problem of rail traction from the long-term point of view, he thought we were now passing through a period of transition greater than any other in rail transport. Diesel-mechanical, diesel-electric, and combustion-turbine power units, he suggested, would have their period of development and utilisation, though it is doubtful whether many people will see eye to eye with the prediction that the overall tendency is towards nation-wide electrification in years to come.

* * * *

Metre-Gauge Locomotives for India

The Mewar State Railways of North West India, which own some 179 miles of metre-gauge line, are to receive three 4-6-0 locomotives from W. G. Bagnall Limited, and details are given elsewhere in this issue. With 4 ft. dia. coupled wheels, a boiler pressed to 180 lb. per sq. in., and 16½ in. dia. by 22 in. stroke cylinders, these locomotives have a tractive effort of 19,674 lb. at 85 per cent. b.p. The boiler tubes, 113 in number, are of solid drawn-steel of 1¾ in. outside dia. swelled ⅛ in. in dia. at the smokebox end. Total heating surfaces amount to 1,164 sq. ft., to which the superheater contributes 176 sq. ft. and the firebox 100 sq. ft. A rocking-grate is fitted and the mild-steel ashpan is provided with opening doors operated by levers on the footplate. An interesting feature is that the coupling-rod driving crankpin, connecting-rod big-end and eccentric rod are fitted with Skefko self-aligning roller-bearings. Approximate weight of the engine in working order is 70 tons 14 cwt. and the adhesion/tractive effort ratio is 3·4 to 1.

Transport Integration and Charges

ONE of the principal means by which the British Transport Commission hopes to forward the objective of integration of the internal transport systems it controls must be by a revised scheme of charges. The period within which the new charges schemes have to be produced, as laid down in the Transport Act, 1947, has recently been extended from the original two years from January 1, 1948, to four years from that date. The task which confronts those charged with producing the schemes is formidable enough, but unless and until workable and effective charging arrangements are evolved and implemented, there can be little hope that the Commission will succeed in any of its major aims.

Among the chief of these is the attainment of an integrated system of transport. "Integration" is now superseding "co-ordination," which had so long a currency, as the key word in British transport. We have suggested that the division of formerly railway controlled and administered activities—such as docks, canals, hotels, road passenger transport—under separate Executives is not conducive to the speeding up of integration of transport. Sir Cyril Hurcomb, Chairman of the British Transport Commission, has agreed that the creation of separate Executives is "a step not without its dangers for integration." He appears to have accepted the view that although the separation of activities in this way may lead to increased overhead costs, this disadvantage can be offset by greater concentration of expert managements, each on its own tasks. In any event the Commission interprets integration as requiring a far closer inter-Executive nexus in many directions and a greater distinction of function in others.

When Sir Cyril Hurcomb addressed the Western Region Lecture & Debating Society last week he dealt at some length with the problem of integration, gave some views on the probable bases of the charges schemes, and also defended the changes in railway accountancy, especially as regards depreciation, which the Commission introduced in its recently issued report for 1948. A summary of his address is given elsewhere in this issue. On integration as such he emphasised the necessity for an ascertainment of relative potential efficiencies of the various forms of transport. This would appear to be a long-term business, especially if, as Sir Cyril Hurcomb suggested, it cannot be done until arrears of railway maintenance have been overcome, obsolete coaching stock replaced, and an estimate based on the results of improvements in other directions which have yet to be undertaken.

The new scheme of charges, according to the hope entertained by Sir Cyril Hurcomb, is to be based on a common and simplified classification of goods for rail, road and water, common conditions of carriage, and a common method of calculating distances. He suggested that one possibility, apparently being studied, was to base distances on the squares of the national grid. He recognised the difficulty of basing charges on costs or of having identical charges for varying forms of transport. "Even after giving proper weight to considerations of cost, and greater weight than has hitherto been given to the loading characteristics of the traffic," he said, "scope will be found for applying equal charges over medium distances; though for very short, or for very long, distances, the charges scheme is likely to influence traffic to use the more suitable and economical method of transport."

On the financial side, the Chairman of the B.T.C. was at some pains to explain that the integration of finance which had taken place gave greater freedom of policy in the development of any part of the undertaking needing it, in interchange of facilities, and in the matter of charges. It did not mean that a general pool had been set up from which any particular Executive could take as much as it wished and put in as little as it liked. The financial administrations of the Executives purposely have been left separate. The effect of this, presumably, is that from the viewpoint of the Commission it is easy to discover which of the Executives contributes most and which least.

Individual results are not so liable to be obscured as if receipts and expenditure of all went into, and were met from, a common fund. Nevertheless, as the receipts of individual Executives will tend, especially after the new charges schemes are implemented, to be affected increasingly by the policy of the Commission, the separate accounts will have less and less significance, although they may serve a useful purpose as a spur to economy.

On the changeover from the "renewals" to the "commercial" system of depreciation of railway rolling stock and similar assets, the Chairman had little to add to what was already known. The propriety of making the change has not been seriously questioned—only the wisdom of it. It will necessarily be some years before the justification for the forebodings which have been voiced can be tested. If present trends of prices and wages continue, it would seem likely that in the future additional borrowing will be substantial. For the current year it seems reasonable to suppose that—in the absence of any further accounting surprises—the deficit on the Commission's operations will be considerably greater than the £4,700,000 for 1948. How long deficits are to accumulate on the basis of paying one's way "taking one year with another," and what happens if they are still running when it becomes necessary to borrow to meet renewals of rolling stock, is anybody's guess.

* * * *

A Loan for Rhodesia Railways

SIR GILBERT RENNIE, Governor of Northern Rhodesia, devoted most of his address to the Legislative Council at Lusaka on September 8 to the Rhodesia Railways. He stated that a statutory body to be known as the Rhodesia Railways will manage and control the railways in Southern Rhodesia, Northern Rhodesia, and Bechuanaland. It will comprise two parts, a Higher Authority, and a Board of Management. The former will be composed of the Prime Minister and one other Minister of the Crown in Southern Rhodesia, the Governor of Northern Rhodesia, and the High Commissioner for Basutoland, the Bechuanaland Protectorate and Swaziland, who will determine the policy of the railways and give the Board general directions on policy.

The Board will consist of not more than six or fewer than five members appointed by the Higher Authority, and its functions are to conduct and manage the business of the railways in accordance with the policy determined by the Higher Authority. Legislation giving the Rhodesia Railways power to carry out its functions has been passed by the Southern Rhodesian Government and it remains for the Governments of Northern Rhodesia and the Bechuanaland Protectorate to pass similar legislation.

Southern Rhodesia will meet 75 per cent. of any deficiency on working and Northern Rhodesia and the Bechuanaland Protectorate 20 per cent. and 5 per cent. respectively. The Government of Southern Rhodesia pledged its credit heavily in borrowing £30,000,000 for the acquisition of the railways in 1947, and it has, therefore, asked the Government of Northern Rhodesia to borrow the sum of £7,500,000 and re-lend it to Rhodesia Railways to help them to finance their capital expenditure over the next two years. This loan represents 20 per cent. (the same percentage as that for which Northern Rhodesia is liable in the event of a deficiency) of the total sum of £37,000,000 of loan moneys, old and new, required for railway purposes.

The ability of Northern Rhodesia to borrow the money for the loan depends largely on the prosperity of the copper mining industry, which is at present handicapped by the shortage of coal supplies from Wankie, Southern Rhodesia, and which has been brought to the notice of the Government of Southern Rhodesia in preliminary discussions on the loan.

* * * *

American Locomotive Practice

FOR over 100 years the parallel lines of railway locomotive development have continued in this country and in the United States, and, throughout this time, locomotive engineers in Great Britain have found points of considerable interest in American practice that have repaid careful study. The fact that it is not always advantageous to copy American methods betokens no disparagement, for what may suit conditions in the U.S.A. may be quite unsuitable, and even inapplicable, in this country. Nevertheless, there have been many notable visits of British locomotive engineers to the United States of America which have resulted in the adoption of American

ideas, with a widespread, and sometimes permanent, influence on British practice.

The introduction of American locomotive features here has not been a continuous process, but a series of isolated incidents, without any apparent connecting thread and often separated by periods of several years. An early and particularly striking occasion is traceable in Great Eastern Railway locomotives of the period 1878-81, when cylinders with slide valves situated above them, driven by rocking shafts from inside link motion, made their appearance. Other American ideas introduced on this occasion were the 2-6-0 wheel arrangement, the provision of doors leading direct from cab front to running plate (Bromley 4-2-2s), and the raised running plate (Bromley 0-6-0s).

The next extensive adoption of American ideas was carried into effect by Churchward on the Great Western Railway, early in the present century, and is so well known that it need not be detailed here.

Much more recently, there has been the impact of American practice occasioned by the American locomotives running in this country during the last war. Such standard features as self-cleaning smokeboxes and hopper ashpans have been adopted widely since then in British designs. This increased receptiveness to the American solutions of problems that also beset the British designer is particularly interesting, for when, over forty years earlier, some eighty American locomotives were imported by three main-line companies, their effect on contemporary practice here was virtually nil.

There is particular value, therefore, in a competent first-hand survey of American locomotive practice at a given period, such as in Mr. D. Patrick's paper: "Some Notes on American Locomotive Practice, 1948," which he read before the Institution of Locomotive Engineers on February 16. His survey is based on observations during a tour of locomotive works and railways in the U.S.A., and deals with steam, diesel-electric, and electric locomotives.

After stressing three governing conditions of American locomotive design, which result in machines so very different from those in Britain, namely, far greater loading gauges, very much higher permissible axle loads, and the need for hauling enormous loads over very long distances, Mr. Patrick discusses various locomotive types.

The steam locomotive, he states, is challenged by rival forms of motive power to an extent never before experienced in railway history. The challenge has led to numerous improvements in detail construction of the reciprocating locomotive and to the appearance of a number of remarkable steam locomotives of unorthodox design, particularly on railways where coal readily is available. He discusses the 4-4-4-4, 6-4-4-6, and 4-4-6-4 Duplex locomotives of the Pennsylvania Railroad, and expresses the view that the use of this principle is not likely to spread, because of the long rigid wheelbase involved. Other experimental designs are the 6-8-6 non-condensing turbine locomotive of the Pennsylvania Railroad, and the Chesapeake & Ohio 4-8-0 + 4-8-4 non-condensing turbine-electric locomotive. Mr. Patrick describes the normal American types, taking the New York Central "Niagara" 4-8-4s as an example, before passing on to the heavy freight types (including articulated locomotives).

A valuable summary of developments in detail design is given in the paper. The cast-steel bed is in every way a highly specialised product; only one special-purpose plant makes it, and both casting and machining demand a special technique. One feels that, on balance, the use of the cast-steel bed is justified under American conditions; even so, the Pennsylvania Railroad has started making pairs of cylinders (complete with smokebox saddle), fabricated by electric welding.

Boiler maintenance still is a substantial worry to American locomotive engineers, particularly concerning firebox stays. The use of mechanical stokers, combined with high working pressures and wide variations in water condition, rather make for leaky stays where temperatures vary over a considerable range. Pressures of about 310 lb. per sq. in., though common, are thought to be nearing the limit in boilers of conventional pattern. Over-fire air jets are helping to minimise the emission of smoke.

Dealing with the diesel-electric locomotive, Mr. Patrick points out the advantage it derives from being capable of a considerable degree of standardisation in design, because, unlike coal, the fuel oil does not vary in quality, and variations in water condition are not a real problem. The multiple unit type is described, taking a 6,000-h.p. three-unit machine as an example. An instructive table of comparative dimensions is given for four typical main-line locomotives, namely, three-unit locomotives built by the American Locomotive Company, General Motors, and Fairbanks-Morse, and the 3,000-h.p. single unit built by Baldwins for the Seaboard line.

It is stated that, as the diesel-electric locomotives now being built are for use on American railways, builders can get first-hand observations of their behaviour in service; there is close liaison between the makers' service engineers and the railways' operating staffs. Moreover, extensive educational facilities are provided by the builders for railway staffs. Within the U.S.A., which has large reserves of oil, diesel-electric traction is a serious challenge to steam. Looking elsewhere, Mr. Patrick considers that where oil must be imported, the modern steam locomotive is unlikely to be superseded, except under special conditions.

Electric traction is represented by an examination of Pennsylvania Railroad achievement, and Mr. Patrick selected the Class "GG1" locomotive for detailed description. The American preference for flexible transmission in such machines, in contrast to the nose-suspended motors fitted on diesel-electric units, is most striking.

A summary of the qualities and probable scope of gas-turbine-electric locomotives completes Mr. Patrick's survey. He feels, however, that, for many years to come, the modern steam locomotive will remain the most suitable form of motive power for service on a vast proportion of the world's railways. The secret of its survival lies in inherent simplicity, relatively low first-cost, and the remarkable elasticity it possesses to meet widely varying demands.

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Post-War Building Activities of the German Railways

AN extensive survey of the building activities of the Reichsbahn in Western Germany since the war is given by Herr Erich Halank, a leading official of the Reichsbahn, in a recent issue of *Der Eisenbahnbau*. At the end of the war, the German railways faced a scene of utter destruction. As a result of incessant air raids and subsequent destructions by the retreating German army, most of the major passenger and goods stations were destroyed or heavily damaged. Most of the great bridges were down, so that the Ruhr was entirely cut off, and nearly half the repair shops were out of action. There was also heavy destruction of other Reichsbahn-owned property, including a great number of staff dwellings.

The total damage was assessed at DM.2,000,000,000, or 10 per cent. of the entire value of the Reichsbahn installations. Permanent way accounted for 19 per cent. of the damage, bridges for another 19 per cent., signalling and telecommunications for eight per cent., and miscellaneous buildings for the remaining 54 per cent. The degree of damage varied considerably as between one Reichsbahndirektion and another. Heaviest destruction was in the Essen district, where the damage amounted to 29 per cent. of the assets. Cologne, Stuttgart, Munich, and Frankfurt-on-Main were next. Most fortunate was the Augsburg Directorate, with no more than 3 per cent. war damage.

In addition to the actual war damage, the Reichsbahn authorities were faced with heavy arrears of maintenance and renewal works, which continued to accumulate after the war, when priority had to be given to the restoration of the lines. The accumulated arrears now represent works of a magnitude equal to those concerned with actual war damage.

The reconstruction work carried out since the end of hostilities falls into three stages. During the first stage of hectic repairs, all efforts had to be concentrated on a temporary restoration of the most important lines, especially those essential to the occupation armies. Emergency bridges were built, single-line working was the rule rather than the exception, and debris-clearing was a major part of the work. During these first months any centralised planning was out of the question, and each Reichsbahndirektion had to make its own makeshift arrangements.

The second stage of reconstruction comprised the years 1946, 1947, and part of 1948, up to the currency reform. During

this period, labour and materials were the bottlenecks, and the amount of work was so overwhelming that a stronger central control had to be exercised. Through their liaison offices at Frankfurt and Bielefeld, the American and British authorities also took a hand in the overall control, and previous permission had to be obtained for all building works. Initial delays caused by this procedure were reduced when the bizonal authorities were merged and building permits granted in bulk.

The shortage of labour and materials made it necessary to concentrate all efforts on those priority works which were indispensable for the safety of operation and for the prevention of further damage through weather exposure. Priority was also accorded to those works which were required for the transport of Ruhr coal. Little could be done to repair stations and other buildings or dwellings; not before 1948 was it possible to make some provision for the rehabilitation of these.

The currency reform of 1948 initiated a third stage. If the shortage of labour and materials had been the decisive factor so far, it was now the shortage of money which acted as a brake, and no more than 55 per cent. of the 1948 building programme could actually be carried out.

In a detailed review of the labour and supply difficulties Herr Halank points to the fact that the Reichsbahn authorities have lost the majority of their skilled pre-war personnel. During the war, most of the well-trained Reichsbahn staff had been called up or directed to work in the occupied territories, but after the war they were dispersed and greatly reduced in numbers.

In 1946, no more than 50,000 persons, including contractors' staff, were available. As a result of a major recruiting effort, the Reichsbahn succeeded in increasing this number to 72,000 at the beginning of 1948, but at least 100,000 men were needed to carry out the building programme. Moreover, the quality of this labour force left much to be desired, though the situation was greatly improved by the currency reform, which made it again worth while for good workers to seek secure employment. To carry out all the necessary repair works and maintenance arrears over a period of ten years the Reichsbahn would need a labour force of nearly 120,000 men.

The shortage of essential building materials presented an even more serious problem up to the time of the currency reform. The currency reform, however, worked miracles, and practically all building materials, with the important exception of steel, are again freely available, though the prices are between 40 and 200 per cent. higher than before the war. Rail renewal is still a most serious problem; whereas, in 1938, the Reichsbahn used 700,000 *tonnes* of steel for this purpose, the 1948 quota was 37,000 *tonnes* only, and had to be preserved for the renewal of the most important turnouts.

Before the war, the Reichsbahn, as the greatest spending authority in Germany, used to exercise a profound influence on the building market, and on the prevalent price level. During the first few months after the war, the authorities had to be content to find any contractors willing and able to do the job. The price was a secondary consideration, and most contracts were on a "cost plus" basis. Contract allocation on a basis of public tenders was re-introduced in 1946, but with little success, as the contractors would not run the risk to accept fixed prices.

At the end of the war, 3,700 km. of track and 13,000 points were destroyed. To these must be added renewal arrears amounting to 9,000 km. of track and 27,000 points. In 1945, the entire personnel, regardless of rank and former occupation, was conscripted for the repair of the vital tracks, so that by the end of the year nearly 50 per cent. of the destroyed track-mileage and points could again be used. Because of the labour and supply difficulties the tempo had to be slowed down subsequently. By the end of 1948, 80 per cent. of the destroyed track had been repaired, and the remaining tracks to be repaired are mostly located in badly damaged marshalling yards and carriage sidings, which have not yet been tackled.

The financial stringency after the currency reform has made it impossible to go ahead with the heavy arrears of maintenance. As a result, and in spite of numerous speed restrictions which had to be imposed, the incidence of broken rails has risen from 16·5 per 1,000 km. in 1937 to 95 per 1,000 km. in 1948. There were, in 1948, 37 accidents and 570 derailments directly attributable to the poor condition of the permanent way. Great efforts were made to prolong the life of old rails and sleepers and make the most of rejected material. Some 300 km. of less important track were "cannibalised," and, to make up for the shortage of timber, preparations were made for a mass-production of ferro-concrete sleepers. The training of new permanent way staff is being improved by the introduction of mobile instruction trains. Ballast work is being mechanised to the greatest possible extent.

One thousand five hundred signal cabins with 31,000 levers and 4,500 signals, as well as block instruments for 4,600 km. of line, were out of action, representing about 15 per cent. of the entire signalling assets. By the end of 1948, about 60 per cent. of the destroyed or damaged installations had been repaired on a permanent basis, and most of the remainder on a semi-permanent basis; 1,100 signal cabins, 4,400 signals, and 4,100 km. of block working were restored. In several instances, the opportunity was taken to introduce modern remote-controlled, centralised signalling for major stations and for sections of up to 100 km. length. This policy was economically justified by the higher efficiency of the centralised control and the savings in staff.

The war damage inflicted on the Reichsbahn telecommunication system amounted to about DM.60,000,000 at the present price level; of this damage nearly 70 per cent. has been repaired. One of the difficulties has been the concentration of the electrical industry in Berlin. Further difficulties were caused by the re-grouping of the telecommunication systems in accordance with the four occupation zones. In spite of these difficulties the telecommunications system of the Reichsbahn in the Western Zones is almost back to its renowned pre-war efficiency.

At the end of the war, 2,472 out of 20,096 railway bridges in the bizone alone were destroyed or damaged, and 1,739 of them were entirely out of action, including all the 14 bridges over the Rhine, two bridges over the Elbe, all the 11 bridges over the Weser, 23 bridges over the Main, and all the 13 bridges over the Danube. The only major bridges which were more or less intact were the Elbe bridges at Hamburg and four bridges over the Kiel Canal. Of the Reichsbahn-owned road bridges, no fewer than 407 were damaged or destroyed. The general policy, especially with minor structures, was to aim at the early reconstruction of the bridges on a permanent basis.

Nevertheless, the paramount need for a speedy repair of many important bridges at a time when materials were extremely short necessitated the erection of many temporary structures. This applied particularly to vaulted viaducts, which had to be patched up with temporary steel structures in the absence of adequate quantities of cement and timber. At the end of last year, 2,047 out of 2,472 bridges had been repaired, including 810 on a permanent basis, 183 on a semi-permanent basis, and 1,054 on a temporary basis. As an incidental sidelight, the loss in coal caused by about 1,000 speed restrictions is assessed at more than DM.15,000,000 per annum.

The destruction of Reichsbahn buildings amounted to a total volume of about 32,000,000 cu. metres, corresponding to a town of 350,000 inhabitants, and representing a damage of more than DM.1,000,000,000. About 30 per cent. of the destroyed buildings have now been replaced by new ones, and the opportunity has naturally been taken to introduce improvements in the layout. The architecture of the new buildings has been governed by the shortage of wood, and prefabricated parts of reinforced concrete have been used to a large extent. An officer has been appointed to examine new construction methods which may be of interest to the Reichsbahn in its building activities.

The financial status of the truncated Reichsbahn precludes the possibility of financing the continued reparation of war damage and the liquidation of wartime maintenance arrears out of the revenue. The revenue is sufficient to cover the expenditure for current maintenance and renewal, but quite inadequate to create what must be regarded as new capital assets. The further continuation of the reconstruction work, which is vital for the rehabilitation of Western Germany, can be undertaken only on the basis of long-term credits.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The "Tilbury" Line

18, Wheatsheaf Close,
Woking,
Surrey. September 24

To the Editor of The Railway Gazette

Sir,—I was very interested in the references to the Tilbury line appearing in your issue of September 2, and I was especially gratified to see that some praise was at last given to the steam locomotives for the way they handle the traffic. It is very doubtful if electrification in itself could improve the services.

The most important improvement required is the completion of quadrupling through to Barking. This could be followed by increased capacity at Fenchurch Street and an extension of colour-light signalling.

These improvements would enable *The Railway Gazette* motto of "shorter trains and more of them" to be put into action, and no doubt they could be faster trains, too!

Yours faithfully,
J. B. LATHAM

Southend Holiday Traffic

7, Lapwater Close,
Leigh-on-Sea. September 30

To the Editor of The Railway Gazette

Sir,—It is with great interest that I read in your editorial of September 12 of the Bank Holiday traffic dealt with at Brighton by electric service. Without deprecating the Southern Region's most excellent handling of trains originating during the 5½ hours, I feel that the performance achieved by the Eastern Region at Southend-on-Sea Central is worthy of mention.

Bank Holiday Whit Monday this year was one of the heaviest experienced in post-war years, 68 steam trains being despatched from 4.0 p.m. till 11.0 p.m., accommodating 60,000 passengers. This huge volume of passenger traffic was dealt with by an exit from Southend of only a single westbound track. Trains averaged one every seven minutes from Southend, but were augmented by others starting from such points as Leigh-on-Sea and Benfleet, so that an average of six minutes was achieved through Pitsea Junction for seven hours, with a two-hour peak working of a train every four minutes from 6.0 p.m. till 8.0 p.m. through that point.

Considering that trains are semaphore signalled and call at intermediate stations (each with a heavy passenger load) on the 10-mile run to Pitsea, the performance achieved by the "Tilbury" is first class.

Yours faithfully,
L. F. LOVETT

Locomotive Shortage in India

Mereflett,
Beaumont Rise,
Marlow. October 3

To the Editor of The Railway Gazette

Sir,—I think that reference to "Locomotive Shortage in India," in your issue of September 30, requires some comment.

You say that "lack of adequate motive-power proved to be a source of some anxiety to the Allies during the S.E.A.C. Campaign." Anyone who was in a responsible position in Indian Railways at the time will agree that the problem was much more complex. The number of available locomotives certainly limited the capacity of Indian Railways to move the traffic, but that was only one of the limiting factors; wagon shortage, lack of terminal and yard facilities and line capacity were all restrictive.

The truth of the matter is that, at the beginning of the war, Indian Railways had less spare capacity for moving traffic than most people perhaps thought, and that by 1941-42, the whole of this capacity had been taken up. This is fairly clearly shown in the graph of net ton-miles moved, published in the Railway Board Administrative report for the year 1946-47. The line rises fairly steeply from 23,000 million ton-miles in 1938-39 to 28,000 million 1941-42, and then very slowly to about 29,000 million in 1945-46. Meantime, the graph of available steam locomotives shows that the number dropped from 8,400 in 1938-39 to 8,200 in 1941-42, and did not begin to rise sharply until 1943-44 when deliveries of War Department engines commenced. By 1945-46, the available stock had increased to over 8,800, an increase over 1941-42 out of all proportion to the increase of tonnage moved.

I suggest that this indicates that locomotive availability was by no means the only limiting factor. Had the Government of India acceded to Mr. Bell's repeated request for new locomotives during the years he was General Manager of the East Indian Railways, it is doubtful whether the capacity of the railway to move traffic would have been greatly increased thereby, though certainly the strain on mechanical workshops during the war years would have been somewhat eased. At the same time, Mr. Bell must have realised that the Government of India was hardly likely to yield to his demands. He had some spare capacity during those years and he and his commercial officers were doing everything possible to attract more traffic to the railways. Further, it would have been rash to order more new locomotives in the years 1937-39, as at that time the broad-gauge railways had no modern and proved locomotive designs available. Even before the publication of the Pacific Locomotive Enquiry Committee's Report in 1939, the "X" series of designs were distinctly suspect and work had only commenced on the new "W" series.

Lastly, while in 1938 certainly the risk of a European war was becoming clear, no one could have anticipated the events of 1942 which made the railways of India the main lines of communication, not to a Middle East, but to a Far East theatre of war.

All of us who worked on Indian Railways during the war have the greatest sympathy for Mr. B. B. Varma and his officers in the difficulties that they are now so ably facing and great admiration for the degree of success that they have now achieved, but it does not assist them to rake up ancient history and to attempt to throw part of the blame for present difficulties on those officers who formed the Railway Board in the years before the war.

Yours faithfully,
GEORGE CUFFE

Poppet Valve Gears

32, Russell Road,
London, W.14. September 24

To the Editor of The Railway Gazette

Sir,—Stratford's first poppet valve engine went into service even earlier than the date given in the editorial note on page 346 of your issue of September 23.

Mr. Bulleid has recorded (*Journal* of the Institution of Locomotive Engineers, 1929, vol. 19, page 580) that Sir Nigel Gresley, towards the end of the year 1923, gave instructions for a Great Eastern 0-6-0 coal engine to be fitted with the Lentz gear. This was the celebrated No. 8280, class J20, which was turned into traffic in May, 1925. It was the excellent result of this experiment which led to the fitting of Lentz poppet valves to the first G.E Section express locomotive, No. 8516, class B12, some two years later.

Yours faithfully,
W. O. SKEAT

The Eritrean Railways

The Railway Executive,
Office of Chief of Police (London Area),
Waterloo Station, S.E.1. September 19

To the Editor of The Railway Gazette

Sir,—Major Collier's article on Eritrean Railways in your issue of September 16 was of particular interest to me as it brought back some happy and amusing recollections. I think in the days to which I refer (1942) Major Castle was the General Manager, and he very kindly laid on a most interesting and enjoyable trip in one of the diesel cars from Massaua to Keren.

Somewhere in the neighbourhood of Ghinda, the car was brought to a stop, and we had to get out and chase a somnolent camel off the track down towards the River Ghinda. Further along the route we stopped at a point where it was possible to see no fewer than five tunnels through which the single line passes. I wonder if this is a unique phenomenon?

Another thing that surprised me was that the Italians in Eritrea had not carried out any demolitions worth talking about, and their beautiful bridges on the road route were left intact. I was told that this was on account of their pride in craftsmanship. The road, which I believe they built or remade in its entirety, displayed two characteristics. It had been let out to contract on the basis of so much a yard; the result was hairpin bends one after the other. Many of these hairpin bends were later linked up, and so reduced the overall distance from Asmara to Massaua. All along this really magnificent road, wide enough for three cars abreast, at approximately every 100 yd. or so one saw painted in large white letters on the rock "Viva Il Duce."

Major Collier's article also recalls another incident, more in keeping with my present job, and concerns the aerial rope railway, which was then being used to carry suitable military stores from the port of Asmara. In 1942, when I used to visit

Eritrea from Khartoum, one of our smaller problems concerned pilferages, which were said to be taking place on the aerial railway.

The rope railway was supported throughout its entire length on pylons, and the traffic was carried in a form of bucket, very similar to the type of thing that can be seen in some of our mining areas. Owing to the length of the railway, many of the buckets were left suspended loaded on the rope when work finished for the day. Movement Control was responsible for the despatch and receipt of traffic, and it fell to them to discover how the losses or pilferages were taking place.

After a good deal of enquiry, it was found that most of these losses took place in the Nefasit area and, as luck would have it, we had a Movement Control rest camp there where troops who had been working in the sweltering heat of the port were sent weekly for rest periods. They discovered that the laden buckets when they came to rest near a pylon were invariably pilfered by thieves climbing the pylons and throwing selected contents down to their confederates at the foot of the pylon.

Although we discovered the thieves it proved quite impossible to prefer a charge of larceny or, in fact, any other legal charge. I was told at a later date that an entirely different report was heard in connection with the baboons who were the thieves!

Yours faithfully,

N. MCK. JESPER,
late Colonel, Movements & Transportation

Some Train-Working Curiosities

Southborough. September 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was interested to read the editorial note under the above heading in your issue of September 23. The fastest train by the usual or former L.B. & S.C.R. route from Tunbridge Wells West *via* Oxted to either London Bridge or Victoria takes 1 hr. 22 min., so that the 7.12 (summer timetable) on Sunday evening *via* Tonbridge is no fewer than 15 min. faster than any train by the normal route.

I have no timetable with which to refresh my memory—perhaps some reader has one and could confirm the following—but I believe there used to be a train in pre-war days on the Indian N.W.R., which ran from Lahore *via* Lala Musa, Khushab, Kundian (almost in the North West Frontier Province), and Multan to arrive back in Lahore about 24 hr. after leaving that station. As this was a circular continuous run of about 600 miles, it is one of the most curious train-workings I can remember.

Yours faithfully,

F. S. BOND

Travel in France

9, Keble House,
Manor Fields,
Putney, S.W.15. September 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—My recent train journeys in France, aggregating over 1,400 miles on the Western, South-Eastern, and Northern Regions, provide further evidence (if such were needed) of the S.N.C.F.'s ever-increasing efficiency, more particularly in the realms of timekeeping.

For example, on the 15.35 Dieppe-Paris boat-train service on September 6, we arrived at St. Lazare 1 min. before time; the schedule of this train is admittedly an easy one, but includes very cautious running between Dieppe harbour and the town station as well as an intermediate stop for water.

The next day, the 8.10 *rapide* from Paris to Cote d'Azur, made up to 14 vehicles, including restaurant-car, brought us into Lyons 2 min. early, in spite of four severe p.w. slacks *en route*. Booked average speed for the 318 miles, with stops at Laroche and Dijon, is 44·7 m.p.h. The connecting railcar to Grenoble (15.35 *ex* Lyons) kept time all the way until we were approaching the outskirts of Grenoble, when an exceedingly long p.w.s. at walking-pace made us unavoidably 6 min. late at our destination.

I returned from Nice to Paris on September 20 by the main part of Train 4—the famous "Train Bleu." On this occasion we left at 17.44, or 11 min. behind the relief, which was dispatched at the scheduled public time of 17.33. Each portion of the train was making the usual 12 stops (including a lengthy one at Marseilles), at an average booked speed of 44·1 m.p.h. for the 675 miles from Nice. The 1948 summer timetables of the S.E. Region show 14 long-distance arrivals at the Gare de Lyon (excluding "duplicates") between 5.40 and 9.0 a.m., but in spite of this density of traffic they were put into Paris at 9.02—equivalent to 9 min. before time on the basis of our departure time from Nice.

Finally, on September 21, the 11.50 from Paris (Nord) delivered us punctually at Calais Maritime (average 52·8 m.p.h., with a 4-min. halt at Amiens), the "Flèche d'Or" Pullman following it in at 15.32, exactly as scheduled, after averaging 57·8 m.p.h. non-stop from Paris.

While in the vicinity of Nice I noted over a period of a week the times of various south-bound expresses and *rapides*—including many that had been involved in long cross-country journeys from Bordeaux, Strasbourg, Toulouse, and Geneva—and in every instance but one they were on time, or within 1 or 2 min. of schedule; the one exception was an express from Strasbourg, which was 10 min. late when I joined it at Juan-les-Pins.

It is true that the overall speed of several long-distance steam-hauled trains in France is still well below the pre-war standard, but if construction work on track and bridges is maintained at present tempo—from visual evidence there seems little sign of its slackening off—restoration of 55-60 m.p.h. bookings over a wide area of the S.N.C.F. is not likely to be long delayed.

As a somewhat melancholy footnote to the foregoing, my concluding run from Dover Marine to Victoria by the "Golden Arrow" started at 2 min. and finished 16 min. late. This, I submit, is poor compensation for a single fare which, when Pullman supplement is added, works out at very nearly 6½d. a mile!

Yours faithfully,

J. E. L. SKELTON

Suburban Coach Design

H.M.S. *Vigo*,
c/o G.P.O., London. October 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with interest your articles on double-deck suburban trains, especially that in your issue of March 4 dealing with such trains for the Southern Region. While appreciating Mr. Bulleid's desire to provide seats for the greatest possible number of passengers, I fully agree with your statement that the design can only make for slower loading and unloading, and is in my opinion a backward step.

Surely the best answers to this problem of overcrowding is provided by trains of the type used by London Transport for its surface lines, by the stock now coming into operation on the Shenfield line and that in use on the Southport line.

Is not "carrying capacity" the criterion nowadays and not "seating capacity"? Would not a train of eight saloon coaches with ample standing room, *without* luggage compartments and fitted with sliding doors carry as many passengers as a double-deck train of the same length? Even a small-size tube train can carry 1,000 passengers.

The use of three double sliding doors would reduce the time spent in stations which even with ordinary compartment stock is excessive. It is noticeable with compartment coaches that passengers run up and down the platform looking for seats, delaying departure; while with open saloon stock they tend to get in anywhere and circulate inside the coaches after departure.

Alternatively, could London Transport surface type stock be built for these lines? Its extremely high acceleration would be a decided asset in the congested area between Charing Cross, Cannon Street, and Lewisham and might possibly allow extra trains to be run than those possible with the present stock with its lower acceleration.

Trains of this type will have to be built sometime during the next few years for use in the new full-size tubes to be constructed, so why not build them now?

Luggage on these lines would have to be handled, of course, by baggage cars running during the slack periods as on the Southport line.

Yours faithfully,

W. S. CLARKE, C.C.O., R.N.

Railway Timetable Maps

60, Rafford Way,
Bromley, Kent. September 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Now that the new Southern Region timetable has appeared I notice that it lacks the two excellent maps which it used to contain; in their place is a map of British Railways, excellent no doubt as a reminder of the great extent of the railway system of which we are now all part owners, but quite useless if one wishes to trace a main-line journey from Brookwood to Brentor, let alone a suburban one between Shortlands and Streatham Hill.

The logical French did not fall into the error of abandoning regional timetable maps when the erstwhile companies were merged into the S.N.C.F. Is it too much to hope that the Railway Executive may be persuaded to follow the sensible example of our friends across the Channel? Let them leave the British Railways map if it so pleases them, but give us back maps of a large enough scale to be of practical use.

Yours faithfully,

A. M. S. RUSSELL

The Scrap Heap

STOLEN TRAIN

In the latest terrorist swoop in Malaya Communist bandits stole a train after shooting one of its police guard.

The train was on its way up-country when the engine lurched, the driver stopped the train, and the bandits, a big gang, opened fire.

They ordered everyone off the train, sounded a bugle, and some of them got on the engine and drove away, later making an unsuccessful attempt to set the carriages and engine on fire.—*From the "News Chronicle."*

* * *

"PUBLIC TRANSPORT MONOPOLY DOES NOT PROVIDE INCENTIVE"

Last July, Mr. W. H. Schmidt, Transportation Editor of our American contemporary, *The Railway Age*, visited this country to study our railways, and later expressed his views in two letters published in the July 30 and August 6 issues of that journal, abstracts from the first of which were given in the "Scrap Heap" page of our September 2 issue. Below we give an extract from an article in the September 17 issue of *The Railway Age* in which Mr. Schmidt sums up the views he has formed:—

"To work for a commercial-minded board of directors, whose members know their way around in the business world, and to stake one's salary and reputation on ability to turn gross into net, undoubtedly provides an incentive which "British Transport" can never produce. The old companies differed widely in earning power (although, as a whole, their stockholders fared better in the depression years than their counterparts in the United States). These differences were not the result entirely of territorial characteristics, because the rich and the poor changed places between amalgamation and the beginning of World War II.

"Is it not reasonable to suppose that corporate prosperity, due in part to managerial energy, was reflected in salary and promotion opportunities which, in turn, excited even greater activity? If so, now that financial accounting is to be made for the railroad net as a whole, and the chiefs of the "Regions" (properties of the former companies or segments or combinations thereof) are shorn of much of the freedom to act and to spend enjoyed by the old-time general managers, how is that incentive to be preserved?

"The Chairman of the Railway Executive, formerly head of the Southern, has himself stated: 'I will confess that one of the things that disturb me in this vast reorganisation is the problem of incentive.' He expressed the opinion that nationalised transport must get the highest quality employee and officer, for whom, perforce, it must compete in the commercial market; that "the standard of comparison should be with outside industry." Can he accomplish this ideal without the spur of profit?"

* * *

100 YEARS AGO

From THE RAILWAY TIMES, *Oct.* 13, 1849

SIR,—As a railway proprietor (to some extent), I notice with regret your advocacy of an advance in fares as a means of promoting the financial state of railway property. In my opinion, a more undesirable measure could not be contemplated, and I am firmly convinced that far from improving the position of Companies, resorting to it, an entirely opposite result would follow its adoption. In the outset I must acknowledge myself a follower of the political economists; and however little their general views may have once been regarded, facts have so accurately established the results of their predictions, that few persons are now to be met with who do not regard their principles with respect.

I contend that the increase of travelling in this country, so greatly exceeding the increase of population, is mainly to be ascribed to the reduction in the rates and charges, and the facility afforded to travellers; and (without any positive knowledge of the fact) I dare venture to assert that a vast increase of intercourse has rapidly succeeded all reductions of railway fares; and the slightest attempt to obtain an increased charge, whether on railways or in prices of any description, has led to a rapid decline in consumption, resort, use, or indulgence, as the case might be. What, under the influence of low prices is used as a necessary of life, is, in the reverse position, only indulged in as a luxury; and I need only refer to the present scale of omnibus fares in proof of the avidity of the public for low-priced conveyances.

Split-second action by Mr. H. Bilverstone, aged 28, a signalman, probably prevented a serious accident, on October 5, when 19 runaway goods wagons raced along a single line toward his cabin at Wendling, Norfolk. He switched them into a siding a few seconds before a crowded train to Norwich was due. The wagons crashed into buffers at 40 m.p.h. and five of them rolled down an embankment. No one was hurt.—*From the "Daily Graphic."*

* * *

AHEAD OF TIME

The diesel-driven "Royal Scot," which leaves Glasgow at 10 o'clock in the morning and should arrive at Euston at 6.20 p.m., has taken lately to running as much as 10 minutes ahead of schedule—a performance which has impressed travellers but about which the railway authorities are curiously modest. There is, they say, no planned attempt being made to improve on the existing long-distance timetables—"Several of our trains are beating the timetables now, but this simply depends on the quality of coal and the type of locomotive." It is, British Railways airily conclude, "nothing to make a song about."

There they are wrong. It is not only that such achievements, in the generally sombre record of the State railways, shine like a good deed in a naughty world; not to advertise the fact is to do a grave disservice to the post-war travelling public.—*From "The Glasgow Herald."*

* * *

"A Lovesome Thing"

(To all "platform gardeners")

Mr. Stationmaster, let it be your duty
To make your platforms blossom into beauty,
Which, as Johnnie Keats said one day, feeling clever,
Every passenger should find a "joy for ever."

Go, then, scrutinise the lists of advertisers
Selling seeds and plants and patent fertilisers
And remember that, for culture that is "horti,"
One can never be considered old at forty.

You will watch your dream unfold—a thing of glory,
As the passing year depicts old nature's story,
With its mingled scents and colours *inter alia*,
From primula to peony and dahlia.

If your passengers should miss a good connection,
Let them spend a golden moment in reflection
That it's better far to cultivate a garden
Than allow one's wretched arteries to harden.

For it keeps you young to dig around the station,
Putting plots into potential cultivation;
You may even grow the world's most massive marrow,
Weighing down a dozen porters and a barrow!

P.S.—We should like to see the station staff (off duty)
Going further with this cult of health and beauty,
Doing weeding drill in all the classic poses,
Or playing "tig" around the rambler roses.

A. B.

North Eastern Region Weather Forecasts

For the convenience of travellers to the coast, the North Eastern Region has installed weather boards at York (above), Newcastle, Leeds, and Hull

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Results

In June, 1949, the operation of the railway, harbour, steamship, airways, and aerodrome services resulted in a loss of £280,925. Revenue for June amounted to £7,968,609 and included improved receipts from goods traffic and harbour dues. Expenditure totalled £8,170,546 and net revenue appropriations £78,988. In this month the working of the railways only, reflected a deficit of £376,458, making the total deficit for railway services for the current financial year £1,338,134. Harbours showed a profit of £254,429 for the month and a total accumulated profit of £658,041 for the current financial year. The airways have an accumulated deficit for the three months April, May, and June, of £174,327.

RHODESIA

Recent Operating Features

The tonnage hauled during June amounted to 434,469 tons, including 152,952 tons of coal and coke—both record figures. Passengers carried totalled 183,522, an increase of 16,324 compared with the corresponding month of 1948. In addition the road motor services conveyed 13,436 tons and 10,907 passengers.

Head-on Collision

A head-on collision occurred between two mail trains in the vicinity of Gado Siding, near Que Que, during the night of July 31-August 1. Both engines were badly damaged and some of the passenger stock was damaged to a less serious extent. One African (engine boy) was killed and a number of passengers (African and European) sustained minor injuries.

ARGENTINA

Stone Ballasting of General Mitre Main Line

The main line of the General Mitre Railway between Ceres and Tucumán, 331¼ miles, is to be stone ballasted, the embankments strengthened, and the track relaid at the same time. The work is expected to take seven years to complete. The line between Buenos Aires and Ceres is already stone ballasted, and that between Buenos Aires and Córdoba also.

Bolivian Revolution Causes Suspension of Service

The revolution which broke out recently in Bolivia caused a complete suspension of the train service between La Quiaca and Bolivian stations. At the time of writing, no regular services had been restored, although one or two special trains have been run under the custody of the Bolivian army.

ISRAEL

Haifa-Tel Aviv Construction

It is reported that good progress is being made with the construction of the new railway along the coast from Haifa to Tel Aviv, and that most of the formation has now been completed. The railway administration hopes that the line will be ready for opening by the end of this year. The estimated cost is some £2,000,000, and the length is about 60 miles.

GERMANY

International Tickets

The Federal Railways have now resumed the issue of international tickets and international return tickets between stations in Western Germany and stations in Czechoslovakia, Hungary, Jugoslavia, Poland, Roumania, and Turkey. As the issue of international tickets by the German Railways in respect of all other countries in Europe had been resumed earlier, bookings from Germany now cover the whole of Europe.

Final Railway Loan Figures

Final figures relating to the last Reichsbahn 6 per cent. loan in Western Germany (mentioned in the article on railway finances in Western Germany in *The Railway Gazette* of August 26) show that the total was 340,000,000 Deutsche Mark, as against the figure of DM.500,000,000 aimed at. Of this total, DM.328,300,000 is for the Federal Railways in the Bi-Zone, and the balance of DM.11,700,000 for the railways in the French Zone. The total allocated to the Federal Railways consists of fresh subscriptions aggregating DM.78,300,000, and the difference of DM.250,000,000 represents converted credits.

Passenger Stock Improvements

A long-term programme for the improvement of the passenger stock, recently announced by the General Manager of the Federal Railways, includes the placing in service of many railcars. The number of restaurant cars and sleeping cars and single-passenger sleeping compartments will be increased. More second-class compartments are to be introduced, and third-class compartments, particularly in long-distance coaches, are to be upholstered. For the new coaches, light metal construction is to be adopted. These improvements will enable the railways better to meet the competition of other means of transport.

Cheaper Regional and District Season Tickets

The prices for regional and district season tickets on the Federal Railways were reduced by 10 to 25 per cent. from October 1. They are now only about 50 per cent. above their pre-war level. As from the same date, weekly district season tickets were reintroduced.

Changing Reichsbahn Names

The changeover from the name "Reichsbahn" to that of "Bundesbahnen" (Federal Railways), foreshadowed in *The Railway Gazette* of September 9, has involved a general change of the names of Reichsbahn offices and Reichsbahn titles. The former Reichsbahndirektionen (Reichsbahn regional managements) are to be known as "Eisenbahn-Direktionen" (railway managements). The former Reichsbahnzentralämter (Reichsbahn central offices) have adopted the name of "Eisenbahnzentralämter" (railway central offices), and the former Reichsbahnsozialamt has become Eisenbahnsozialamt (railway social services office). Likewise, the prefix "Reichsbahn" in other railway appellations (Verkehrsämter, Betriebsämter, Maschinenämter, Ausbesserungswerke) has been replaced by the prefix "Eisenbahn." The general management, formerly known as "Hauptverwaltung der Deutschen Reichsbahn," is to be known as "Hauptverwaltung der Deutschen Bundesbahn," or HVB for short.

The indication "DR" on the passenger and goods vehicles which was adopted in wartime in place of the longer indication "Deutsche Reichsbahn" is to disappear. It will be noted that in the new name for the regional managements the prefix "Eisenbahn" is separated by a hyphen from the word "Direktion," whereas in the other names it is not separated.

HUNGARY

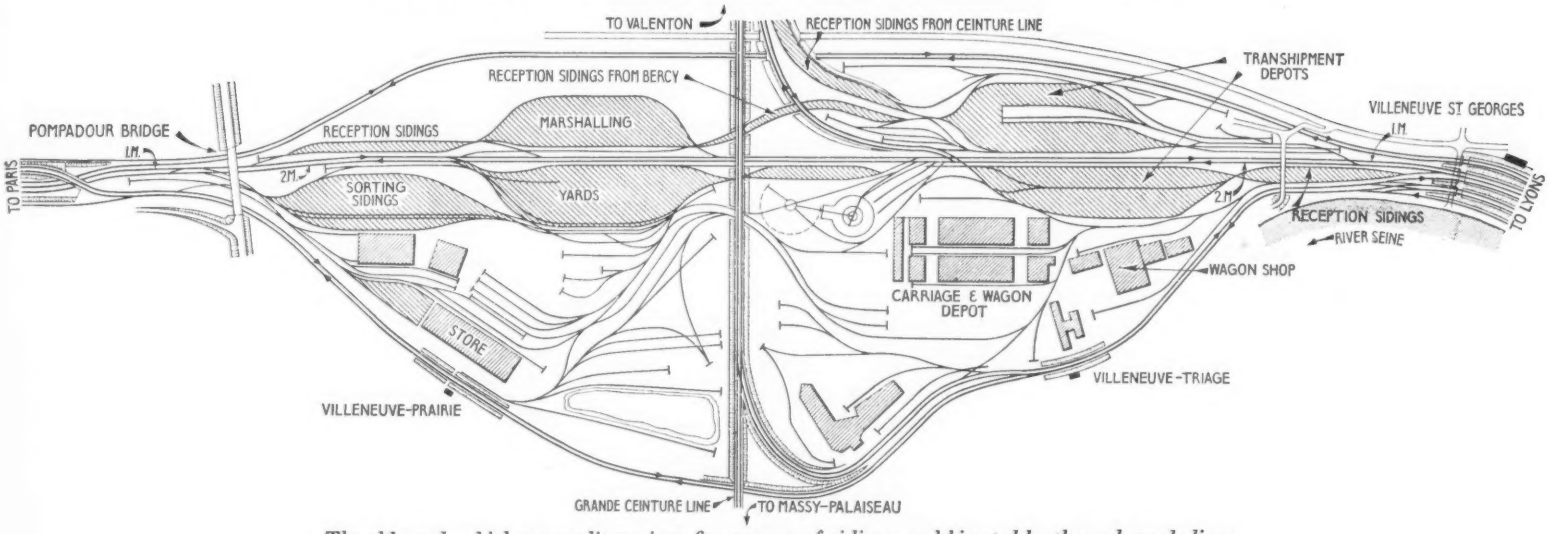
Record Train Load

According to a report from Moscow a goods train, weighing 2,250 *tonnes* behind the locomotive, ran the distance of 72 miles from Miskolc to Hatvan in four hours without a stop early in September. This is claimed to have been the heaviest goods train ever worked in Hungary, and has been stressed as an outstanding example of Stakhanov methods adopted by the locomotive crew. Miskolc is the principal mining and heavy industrial centre in the country. The line between Miskolc and Budapest *via* Hatvan is double-track throughout; Hatvan is 42¼ miles north-east of Budapest.

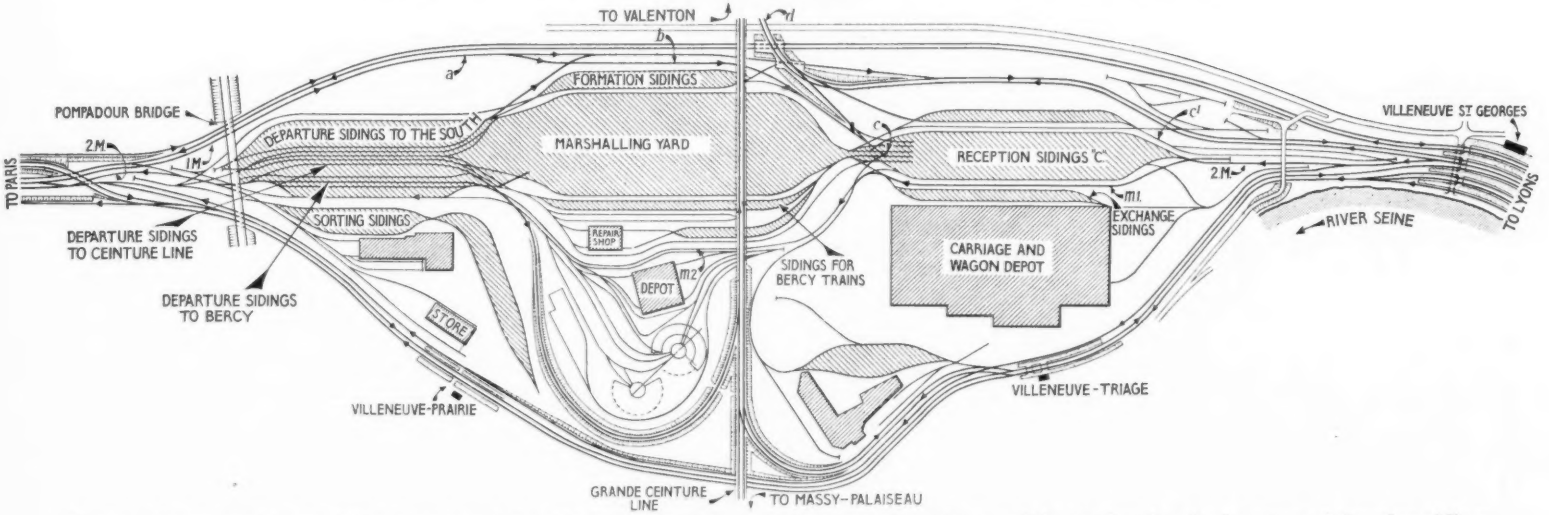
Luxury Travel in New South Wales

The "Riverina" express running between Sydney and Albury, New South Wales Government Railways

Villeneuve-St. Georges Yard, French National Railways



The old yard, which was split up into five groups of sidings and bisected by through goods lines



Layout of new yard, now being constructed, in which the through goods lines are looped around the yard and a single group of shunting sidings replaces the former five groups, thus obviating many complicated shunting movements

The Reconstruction of Villeneuve-St. Georges Yard, French National Railways

Simplification of the former complicated layout to facilitate shunting operations and increase capacity

VILLENEUVE-ST. GEORGES on the Paris-Lyons line of the South-Eastern Region, French National Railway, is one of the great marshalling yards in the Paris area. Like others, it was completely destroyed by bombing during the war and now is being reconstructed and reorganised. This difficult work is being carried out without interrupting traffic. The need of modern equipment at Villeneuve became urgent when the electrification of the Paris-Lyons line was put in hand.

The new yard will deal with "ordinary" goods traffic, as distinct from the "accelerated" traffic, which by co-ordination between the South-Eastern and South-Western Regions is dealt with at Corbeil and Juvisy yards. Since the war, the old system of fast and slow goods transport at the choice of the consignor has been replaced throughout France by an "accelerated" and an "ordinary" service, in which latter the method of despatch rests with the S.N.C.F. The new system has resulted in a great economy of wagons and speeding-up of all traffic.

There will be a simplified layout with a single group of shunting sidings for trains from all directions. In the old yard there were five groups of shunting sidings with their respective reception groups on different levels. The yard was traversed by special lines for freight trains between Paris (Bercy) and Villeneuve. Trains were received also from, and despatched to, the Outer Circle (*Ceinture*) line, which crossed the yard on an embankment from Valenton towards Massy-Palaiseau.

Shunting, make-up of trains, and transhipment of goods were carried out separately for the north-south (down) and south-north (up) lines. Shunting operations between the different groups were complicated and costly, leading to great delays in turn-round of wagons and involving heavy expenditure for engines and staff. The yard also comprised transhipment sheds, S.N.C.F. workshops, fuel stores, general stores, locomotive depot, and a water column. The transhipment sheds will not be rebuilt, as they are not needed for the ordinary freight traffic. The new depot on a more convenient site will house both steam and electric locomotives.

On the east side of the Villeneuve yard are the up and down tracks for fast passenger trains and on the west the tracks for slow trains. The goods tracks, which formerly traversed the yard from Bercy to Villeneuve, are relegated to the sides, the down track on the east (1M) and the up on the west (2M). Hence, all operations will be independent of traffic on the freight-lines and numerous crossovers will be avoided.

Single Group of Reception Sidings

Trains coming from Bercy enter the new yard by the track a-b-c on the accompanying diagram, directly into the single group of reception sidings, or, if prevented by detaching operations in progress, by the track a-b-c into reserve sidings, to be brought back then into the reception group. Trains coming from the *Ceinture* enter by the track d-c, or, if prevented, by the track d-c^1 to be brought back as in the case of the Bercy trains. Up trains from the south enter the reception group by the track 2M. Engines returning to depot follow the tracks m^1 and m_2.

To save time in shunting operations two humps are used alternately. Two shunting engines are used. While one is detaching wagons, the other pushes up a string of wagons from the reception sidings near to the hump ready to begin detaching as soon as the first has finished. Four humps are provided at the north end of the shunting sidings to make up trains for all directions. The tracks are arranged so that all the four humps can be operated simultaneously. A make-up group of eight tracks, east of the shunting sidings, is reserved for simultaneous make-up of slow trains for the south. These leave directly by the down goods line.

Another make-up group of three tracks, west of the shunting sidings, is used for the make-up and departure of slow trains for Maisons-Alfort, Charenton, and Bercy. All other trains leave from the departure sidings—southward by the down goods track; for Bercy by the track 2M *bis*; for the *Ceinture* by the Ceinture junction track. Reserve sidings on the Paris side of the yard are placed at the disposal of the Gare de Lyon for formation of trains in busy periods. Near the reception sidings is a relay group for temporary halts of certain through trains.

The accompanying table compares the situation of the old with that of the future yard at Villeneuve. New tracks in the future yard will be 875 to 985 yd. long to receive and make up long electric trains.

Two humps on the south side of the shunting sidings are equipped with an automatic shunting cabin and the shunting tracks fitted with six Westinghouse wagon retarder brakes operated by compressed air. The four humps on the north side are to be fitted temporarily for hand braking and eventually with electric equipment.

—	Old yard	New yard
Reception—		
Siding groups ...	5	1
Tracks	25 (605-715 yd.)	18 (935 yd.)
Shunting—		
Siding groups ...	4	1
Tracks	188 (550-715 yd.)	48 (484-770 yd.)
Formation and departure—		
Siding groups ...	1	5
Tracks	17 (550 yd.)	32 (770-880 yd.)
Daily average number of wagons detached ...	2,400	3,800
Number of long trains made up	23	25
Daily number of trains—		
Received ...	50	72
Despatched ...	54	74

The old shunting yard at Villeneuve comprised a number of siding groups at different levels on either side of the freight tracks. Various difficulties prevented needed developments. The principal obstacles were the Pont de Pompadour (a highway bridge forming a bottle-neck on the Paris side), the *Ceinture* embankment crossing the yard, and the old bombed locomotive depot. For various reasons, including lack of steel and the planning of a new depot adapted to electric traction, it was impossible to deal with these obstacles at the outset. When the ground on the north, or Paris side, of the *Ceinture* had been cleared of war wreckage, a start was made by levelling all that area and laying provisional shunting tracks. Other difficulties were delays in delivery of permanent way apparatus, sleepers and ballast, as well as labour shortage.

The first stage was begun in May, 1945. It was a race against time with the paucity of material available to lay out new shunting sidings and enable Villeneuve to cope with the reviving traffic on the up lines to Paris from south, north, and west. By November 1 the new sidings were ready for making up trains for Bercy and the *Ceinture*; a new and permanent junction was made with the latter for that purpose. The rapid progress resulted from the strenuous efforts of railwaymen. Mechanical excavators of the Razel firm removed 1,500 cu. metres a day, and permanent way and signal engineers followed up fast.

The second stage, similar to the first, comprised a new group of sidings for down traffic and reception sidings for wagons from Bercy, which were ready for service on February 18, 1946. Traffic increased from 60,000 wagons in the second half of 1944 to 566,000 in the first half of 1946.

The third stage, in 1948, comprised rebuilding the Pompadour highway bridge, lengthened by more than 100 yd. over the former bottle-neck and also widened to twice the former width; construction of a viaduct to carry the *Ceinture* tracks over the Villeneuve yard, and the building of a new locomotive depot.

Pompadour Bridge Rebuilt

Because of lack of steel the original plan for a steel bridge at Pompadour was abandoned for a reinforced concrete structure of three spans and 21 metres (22.89 yd.) overall width, including two lateral footpaths each 4½ metres (5 yd.) wide.

Pier foundations for the bridge and the viaduct were begun in 1947. The lines for fast passenger trains were shifted eastward under the outer span of the Pompadour bridge to leave space for new tracks and the supports for the overhead for the electric trains.

In building the *Ceinture* viaduct across the yard, a breach of 50 metres (55 yd.) was made in the old embankment to permit extension of shunting sidings southward under the viaduct. The gap was bridged by steel lattice girders in three spans. Later a breach of 180 metres (197 yd.) was made to provide for extension of 33 shunting tracks and bridged in six new spans. Finally the structure of 380 metres (415 yd.) crossed the entire group of sidings and *Route Nationale No. 5*.

The new depot is situated on a commodious site north-west of the *Ceinture* viaduct. It is a reinforced concrete roundhouse of the Avignon type, of 133 metres dia. (145 yd.) with turntable of 27 metres (29.43 yd.), but for the present it is not completely circular, covering only 32 tracks out of 48. It is intended to accommodate 60 BB electric locomotives for hauling freight trains, electric locomotives, and 40 diesel shunting engines, as well as railcars for the fast services from Paris to Clermont-Ferrand and St. Etienne. Fifty suburban electric trains also will be attached to this depot. The reinforced concrete workshop and sheds will provide for simultaneous overhauling and repairs of steam, electric, and diesel locomotives. Buildings adjacent to the roundhouse will provide comfortable quarters and medical service for train crews and the yard staff.

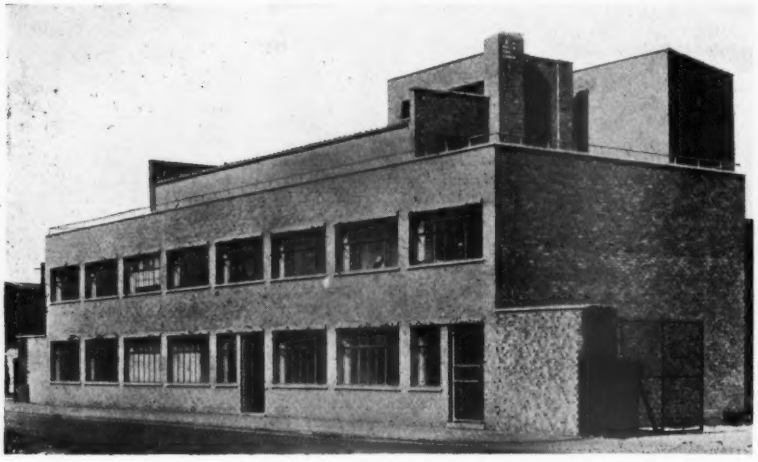
In the original estimates all the work was due for completion in 1949, but insufficient credits may cause delay.

The foregoing details are taken from an article by M. P. Geoffrey and M. Dinard, published in our contemporary, the *Revue Générale des Chemins de Fer*.

Layout of new yard, now being constructed, in which the through goods lines are looped around the yard and a single group of shunting sidings replaces the former five groups, thus obviating many complicated shunting movements

New London Midland Region Dock Offices

Use of recovered materials for replacement of goods department offices at Canada Dock, Liverpool



L.M.R. goods department offices at Canada Dock, Liverpool

A NEW office building at British Railways, London Midland Region, Goods Department, Canada Dock site, Liverpool, has been erected to replace accommodation destroyed by enemy action in December, 1940, and has recently been put into service. Much of the material used has been recovered from surplus assets and salvaged materials.

Accommodation is provided on the ground floor for the agent, cashier, delivery office with public enquiry lobby, chief foreman and carters' enquiry lobby; a telephone exchange is also incorporated. For the convenience of outside staff, a covered way is provided for the payment of wages from an external pay window in the cashier's office. On the first floor are the invoicing and correspondence offices, together with the staff office, and men's lavatory accommodation is provided at the rear.

The building is a steel-framed structure, and has been designed to carry a second floor for future extension, and part of this second floor area is used as a temporary stores and reference room, with a tea-making room adjacent to the main staircase, and with women's lavatory and cloak room accommodation at the rear. The heating chamber and fuel store occupy an excavated area, and are served by the main staircase.

Interior Layout

The planning is on a grid of 3 ft. 4 in. for steelwork and all internal partitions. The partitions are of plywood, and, being prefabricated, can readily be repositioned, if necessary, without structural alterations. The provision of a suspended ceiling to the soffits of beams, together with walls flush with piers, and flush radiators, give clean and unobstructed office space. Separate cloakrooms are provided in each office, with access from the office only. Careful consideration was given to the selection of suitable facing bricks, and a final decision to use a golden brown brick fully justified its selection.

The building was designed by the Architect's Office, Civil Engineer's Department, London Midland Region, British Railways. The general contractors were Holland & Hannen & Cubitts Limited (Liverpool Branch); sub-contractors and suppliers were as follow:—

Steelwork: Octavius Atkinson & Sons Ltd.
Pre-cast Concrete Floors and Staircase: Concrete Limited.
Facing Bricks: Ravenshead Brick Co. Ltd.
Metal Windows: Middlesbrough Casements Limited.
Prefabricated Partitions: Yelverton Dawbarn Brothers.
Flooring: Marbolith Flooring Co. Ltd.
Terrazzo Paving and Partitions: Messrs. Diespeker & Co. Ltd.
Sanitary Fittings: Associated Clay Industries Limited.
Ironmongery: Lockerbie & Wilkinson Limited.
Electrical Installation: Campbell & Isherwood Limited
Heating and Hot Water: G. N. Haden & Sons Ltd.
Fire Escape Staircase and Cellar Flaps: S. W. Farmer & Son Ltd.
Ash Hoist: Aldous & Campbell Limited.
Balustrading and Wall Rails in Bronze and Parapet Wall Railing: Light Steelwork (1925) Limited.
Blinds: J. F. Janes & Son Ltd.
Gate: Garston Welding Company.

Bridge Renewal at Stamford Brook, London Transport

In four nightly occupations, an eighty-year old structure carrying heavy traffic is being replaced

AS recorded in our October 7 issue, work is in hand on the renewal of bridge D.76 at Stamford Brook on the westbound District and Piccadilly Lines of London Transport. This bridge carries the two lines over the London Midland Region coal sidings on the former branch of the North & South Western Junction Railway from South Acton, opened on May 1, 1857.

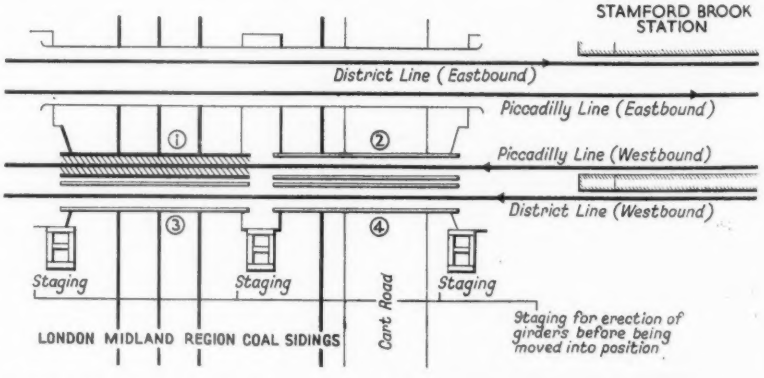
Wrought-Iron Spans

The spans being replaced are of wrought iron and have been in service since January 1, 1869, when the line was opened as part of the Addison Road-Richmond branch of the L.S.W.R. From 1877 the bridge bore not only L.S.W.R. trains but also those of the District Railway which had running powers between Studland Road (Hammersmith) and Turnham Green Junction for its Richmond (and subsequently, also Ealing) trains and those of the Metropolitan Railway working to Richmond *via* the Hammersmith & City line.

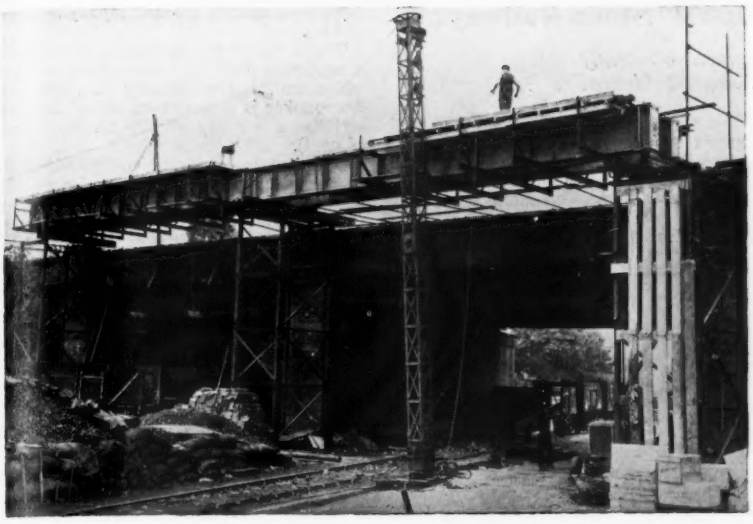
In 1911, six years after the electrification of the District, the traffic necessitated the quadrupling of the section, and an entirely new bridge was built on the north side of the old; the widening was completed on December 3. In 1933 the two L.S.W. tracks, which had lain derelict since 1916, were used for the westward extension of the Piccadilly line from Hammersmith, and the four-track layout was modified so that the outside sets of metals were used by District trains and the two middle sets by Piccadiliy trains, with the result that the bridge now under replacement henceforward carried westbound traffic only.

The main girders were cross-braced and decked with timber, with the tracks laid on longitudinal timbers. Cable runs were carried on the inner faces of the two parapet girders.

It has been found necessary to lift in the new bridge in four separate spans.



Sketch plan of site, showing the four distinct re-girdering operations



View from London Midland Region coal sidings of new spans erected on staging ready for lifting into position in westbound Piccadilly line

two for each track, each span 46 ft. long and each of them weighing approximately 42 tons.

Two of these were erected on trestles on the south side of the line and above the level of the existing bridge. Installation has to be carried out in non-traffic hours between 1.15 and 6.45 on Sunday mornings, and because of this limitation only one span for one track can be installed at a time.

Work of Erection

The first (the westernmost under the Piccadilly Line) was installed on the night of October 1-2. The second Piccadilly Line span is in course of erection and will be placed in position on October 22-23.

One of the two District Line spans will be installed on the night of November 5-6; the other on the night of November 19-20.

At the changeover of the Piccadilly Line spans a 10-ton crane on the eastbound Piccadilly Line removes the permanent way and lifts the existing girders into a main-line wagon on the westbound Piccadilly Line.

The new span of the bridge is then rolled inwards over the existing bridge for a distance of about 3 ft. 6 in. to bring it within reach of two 30-ton cranes standing on the westbound District Line, which place it in position on new bearings previously installed. All necessary alterations to brickwork have been carried out in advance, the old spans being temporarily supported on steel stools to permit this.

Concrete Decking

The new spans are being decked with reinforced concrete, waterproofed and covered with blue brindle tiles to carry ballasted track, and hand-railings are incorporated instead of parapet girders. The tiles serve to protect the concrete from picks when reballasting takes place. Cables, which have been temporarily diverted, are being carried on the inside of these railings.

For the installation of the District Line spans the 30-ton cranes need to stand further from the centre of the bridge. After the removal of the old girders by the 10-ton crane standing on the westbound Piccadilly Line, the new spans are rolled the full distance into alignment and then lowered on to their bearings by the 30-ton cranes.

The contractor for the work is Arthur Foster.

View looking westwards from Stamford Brook Station showing new span on staging for installation in westbound Piccadilly line (left of signal)

B.T.C. POLICE FIRST AID COMPETITION.—The first British Transport Commission Police National First Aid Competition was held in the former shareholders' room, Euston Station, London, on October 11. Throughout the six Regions into which the police force is divided, preliminary competitions had been held, and the winning team from each Region was competing for the challenge shield and prizes presented by the St. John Ambulance Association, under whose auspices the competition was held, and the runners-up trophy which was presented by the Chiefs of Police. The scene for the team test, judged by Dr. William Duncan, of Liverpool, was set in a watchman's hut with a railway refrigerating van nearby; the individual tests, held in private, were judged by Lt.-Colonel E. J. Selby. The results of the contest, with total marks obtainable of 390, were:—Portsmouth (South Western Area), 255 points; Liverpool Street (London Area), 236½ points; Manchester London Road (Midland Area), 231½ points; Edinburgh (Scottish Area), 214 points; Leeds (Northern Area), 212 points; and Nottingham (Eastern Area), 212 points. The shield, trophy, and prizes were presented by General Sir Daril G. Watson, Member of the Railway Executive, who congratulated the competitors on the high standard of their work and thanked the officers of the St. John Ambulance Association for organising the competition. The Earl of Lindsay, who presided, Sir Bertram J. T. Ford, Director of Ambulance, St. John Ambulance Association, and the Countess Mountbatten of Burma, Superintendent-in-Chief, St. John Ambulance Brigade, all stressed the importance of first-aid knowledge to British Transport Commission police in their dealings with transport accidents. Among Railway Executive officers present were Sir Eustace J. Missenden, Chairman; Mr. H. Adams Clarke, Chief Officer (Staff & Establishment); Mr. H. H. Cavendish Fuller, Chief Medical Officer; and Mr. W. B. Richards, Chief Officer (Police).

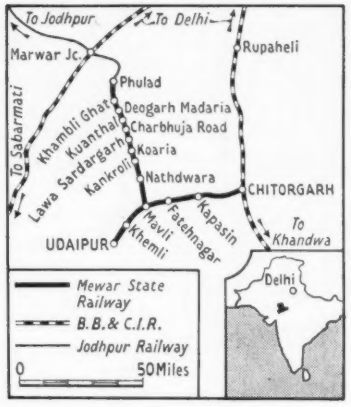
SCOTTISH RAILWAY EDUCATIONAL ARRANGEMENTS.—University courses on subjects associated with railway practice have been arranged at Aberdeen, Edinburgh, and Glasgow Universities and at University College, Dundee, for the winter of 1949/50. The lectures will be given during the evening. Subjects include elementary economics, railway operating, law relating to the conveyance of goods and passengers by railway, and economic geography.

4-6-0 Locomotives for Mewar State Railways

Three metre-gauge locomotives recently completed by W. G. Bagnall Limited

AN order for three 4-6-0 locomotives is to be delivered to the metre-gauge Mewar State Railways, of North West India, by W. G. Bagnall Limited, of Stafford. An interesting feature of these locomotives is that the coupling-rod driving crank-pin, connecting rod big-end and eccentric rod are fitted with Skefko self-aligning roller-bearings. The engines have a tractive effort of 19,674 lb. at 85 per cent. of the boiler pressure.

Each engine has outside cylinders of 16¾ in. dia. and a piston stroke of 22 in.



Mewar State Railways system

The boiler casing, which is covered with asbestos mattresses cased in steel sheets and pressed-steel mouldings, is of Siemens Martin open-hearth basic steel plates, the barrel being 12 ft., and the firebox is of the Belpaire type. The boiler casing is stayed by solid forged-steel longitudinal stays, the top of the firebox by sling and direct stays and the inner and outside fireboxes are stayed together with copper stays of 1 in. dia.

The tubes, 113 in number, are of solid drawn-steel of 1¾ in. outside dia. swelled ¼ in. in dia. at the smokebox end. A mild-steel ashpan is secured to the foundation ring by studs and cotters and is provided with opening doors operated by levers on the footplate. The firebars are of cast iron of the rocking-grate type.

The smokebox is of Siemens mild-steel plates and is fitted with airtight mild-steel flanged door and baffle plate. A cast-iron regulator of the double-valve type is fitted in the dome, operated by a rod connected to a handle on the boiler backplate. Two 2½ in. dia. safety valves of the Ross Pop type are fitted on the firebox roof and are set to blow off at 180 lb. per sq. in. Two No. 7 mm. injectors with Simplex cones are fitted to take water at 125° F.

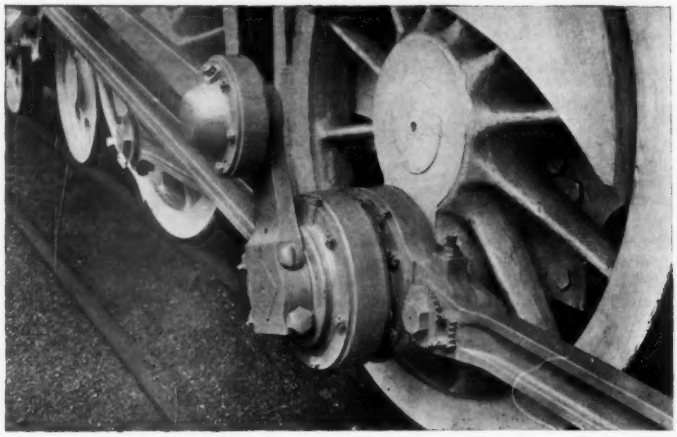
All steam valves are mounted on a steam stand with an isolating master valve. The boiler has a superheater header with 15 elements.

The frames are constructed of Siemens mild-steel plates, each rolled in one piece ⅞ in. thick, and securely braced together by strong cross stays all riveted together by $\frac{13}{16}$ in. dia. rivets. The engine front buffer-beam is of cast iron 4½ in. thick and secured to the frames by substantial angles and rivets; a steel cowcatcher is fitted to the front of the engine.

Connecting rods are forged from solid, the large ends being fitted with Skefko roller bearings; coupling rods are also forged from solid and Skefko roller bearings are fitted at driving end of leading rods, as shown in the accompanying illustration.

The tender tank, carried on six wheels, is constructed of mild-steel plates and the water tank has a capacity of 3,000 gal. The bunker is arranged on top of the tank and has a capacity of 225 cu. ft. (5 tons of coal).

Cast-iron brake blocks are provided on all coupled wheels and all tender wheels. The brake is applied by a steam brake valve combined with a vacuum ejector, which can operate together, or separately, the vacuum brake on the train and tender, and the steam brake on the engine.



Coupling-rod driving crankpin connecting-rod big end and eccentric rod fitted with Skefko self-changing roller bearings

The principal particulars are as follow:—

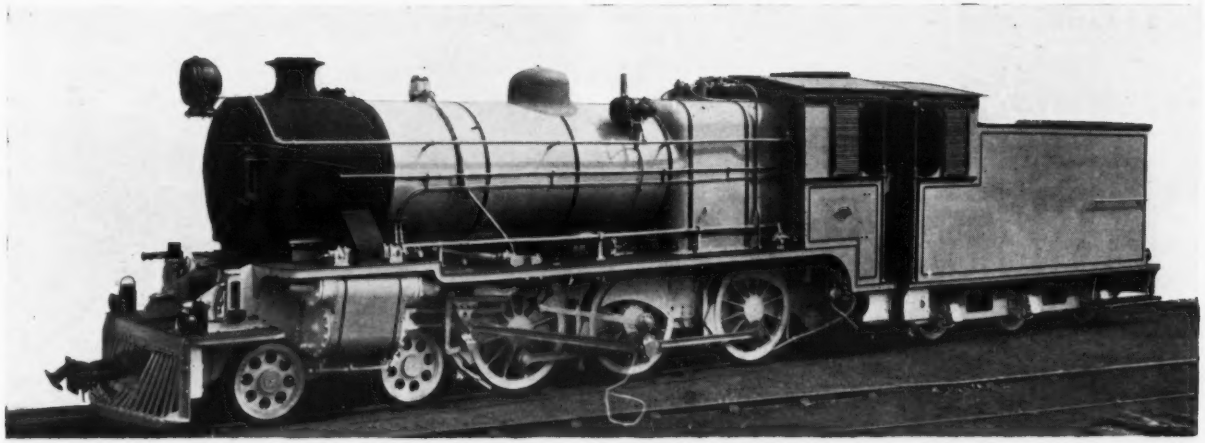
Gauge of railway	Metre
Wheel arrangement	4-6-0
Dia. of cylinders	16¾ in.
Stroke of pistons	22 in.
Dia. of driving wheels	4 ft. 0 in.
,, leading ,, ...	2 ft. 4½ in.
,, trailing ,, ...	4 ft. 0 in.
Rigid wheelbase	11 ft. 0 in.
Total	20 ft. 2 in.
Maximum height	11 ft. 3 in.
,, width	8 ft. 2 in.
,, length over buffer beams	48 ft. 2½ in.
Heating surface of tubes	888 sq. ft.
,, ,, ,, firebox	100 sq. ft.
,, ,, ,, superheater ...	176 sq. ft.
Total heating surface	1,164 sq. ft.
Grate area	25·5 sq. ft.
Working pressure	180 lb. per sq. in.
Bunker capacity	5 tons of coal
Tank	3,000 gal.
Weight when empty (approximately)	50 tons 10 cwt.
,, in working order (approximately)	70 tons 14 cwt.
Tractive effort at 85 per cent. b.p....	19,674 lb.
Ratio adhesion/tractive effort ...	3·4 to 1

"BECO" ROLLING MACHINES.—Burton, Griffiths & Co. Ltd. has been appointed sole agent in Great Britain, Northern Ireland and Eire for the "Beco" Super Production Thread Rolling Machines manufactured by Batchelder Engineering Company, Springfield, Vermont, U.S.A.

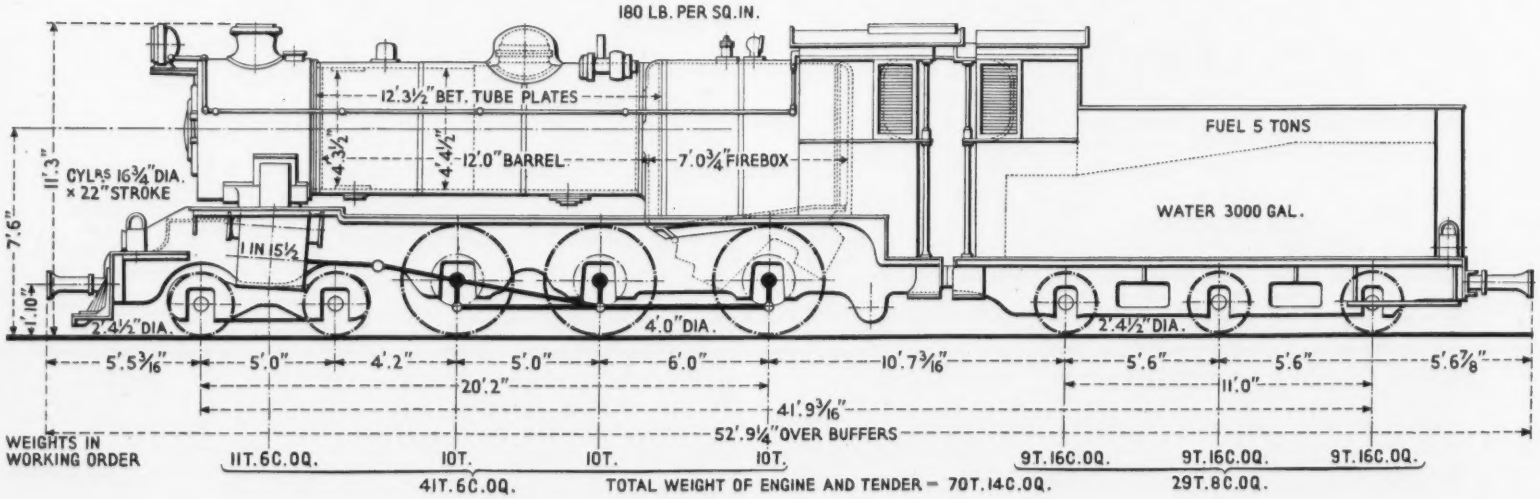
THE FIRST YEAR.—Lord Latham, Chairman of London Transport Executive, has written a personal letter for distribution to all London Transport staff, in which he describes the Executive's activities during 1948. The letter has been published in book form, with paper covers, and is well illustrated by photographic and diagrammatic reproductions. Brief personal notes are given on the Members of London Transport Executive, and Lord Latham pays tribute to the late Lord Ashfield. Commenting on the special difficulties of working, Lord Latham points out that whereas before the war 511,000,000 passengers commenced their journeys at London Transport stations, there were 616,000,000 in 1947 and in 1948, 650,000,000; furthermore, passengers were travelling longer distances than before the war. Progress towards completion of the New Works programme is shown and reference made to the hire of 180 new double-deck Tilling buses, among measures to improve services. A simple diagram shows how each pound of the total receipts is spent and, commenting on a table showing the financial results of each service, Lord Latham emphasises the importance of looking at London Transport as a whole. In conclusion, some details are given of future projects, with some reference to the London plan.

SAUNDERS VALVE COMPANY.—In his statement circulated with the report and accounts for the year ended April 30, 1949, of the Saunders Valve Co. Ltd., whose results were given in our September 23 issue, the Chairman, Mr. J. C. Billingham, said that fixed assets had increased through expenditure of £49,000 on acquiring the aircraft fuel and oil equipment plant at Hereford. This would enable the company to concentrate this type of work there, with consequent increased efficiency. In the home market, despite a slackening in demand for some types of valve, there was a steady increase in business.

4-6-0 Locomotives for Mewar State Railways



Metre-gauge 4-6-0 locomotive built by W. G. Bagnall Limited for Mewar State Railways



Principal weights and dimensions of the new 4-6-0 locomotives

Modernisation of Euston Staff Dining Club

Dining rooms and cafeteria for salaried staff can serve 1,600 meals in two hours

TO serve the staff of over 2,000 office workers at London Midland Region headquarters at Euston, who since the war have been without canteen facilities, the dining rooms in Cardington Street, adjacent to Euston Station, have been remodelled for use as a dining club.

The original building was erected for the London & North Western Railway in 1907, and was extended in 1914 to provide amenities for the salaried staff at Euston. It consisted of a large dining room on the ground floor, library, billiard and games rooms on the first floor, and kitchen and stores on the second floor. After the grouping in 1923 it was found necessary to withdraw the recreational amenities to provide additional dining accommodation on the first floor.

Wartime Use

On the outbreak of war in 1939, the majority of the headquarters staff was transferred to Watford, where canteen facilities were provided. The premises at Cardington Street were partially closed, and the first and second floors were temporarily used by wages staff as a canteen. At the end of the war with the gradual return of staff to London, it was imperative, particularly as a result of food rationing, to restore dining facilities as speedily as possible.

The primary difficulty encountered was obtaining suitable cooking equipment to replace that in the existing kitchens at Cardington Street, which was life-expired. Finding it impossible to get delivery of new equipment quickly, arrangements were made to transfer cooking equipment from a redundant canteen in Scotland which, in view of its heavy nature, necessitated replanning the accommodation on all floors.

The remodelled building has manager's office, kitchen, food-preparation rooms, stores, changing rooms, and lavatories on the ground floor, a dining room with waitress service, licensed bar, and lavatories on the first floor, and a large cafeteria service and dining room for the use of supervisory staff on the second floor.

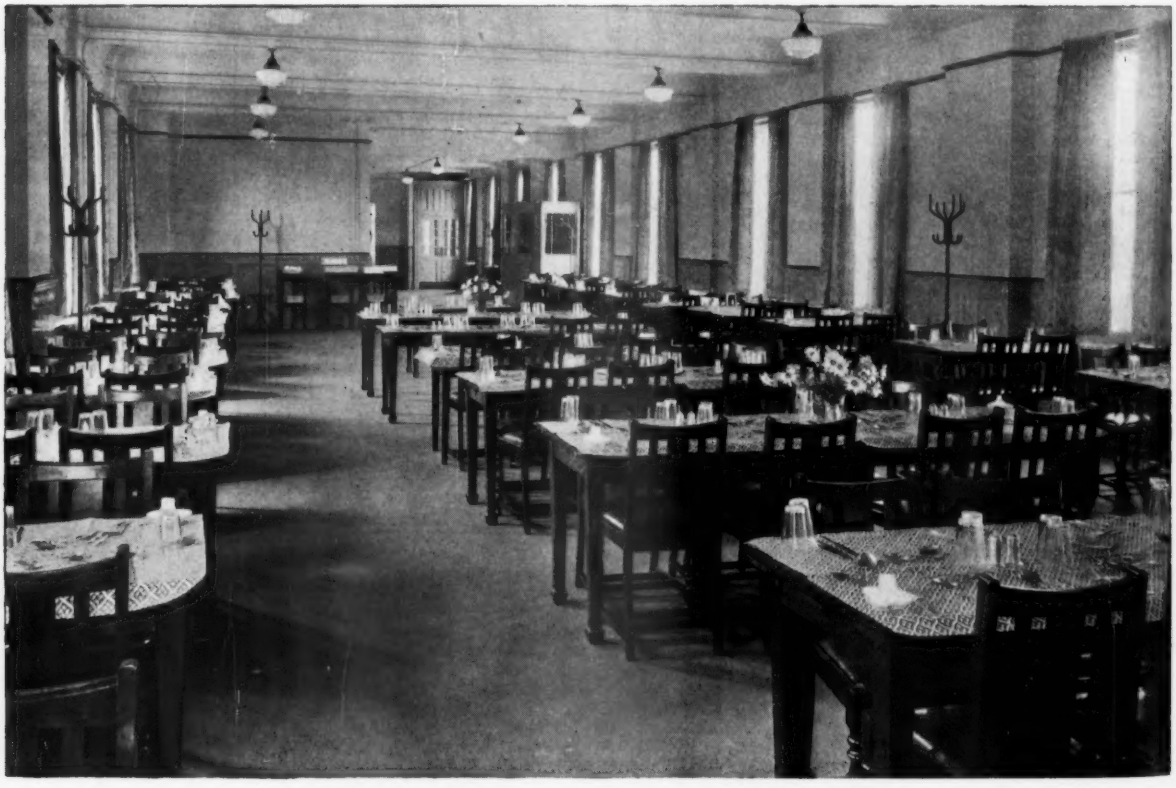
Special consideration has been given to the ventilation and layout of equipment in the kitchen. The floor is finished in heather-brown quarry tiles with coved skirting, and the walls are lined with ivory glazed tiling to a height of 5 ft. 3 in.; the walls above the tiling, and the ceiling, are painted. Contact between the kitchen and service hatches on the first and second floors is by electrically-operated lifts, while a goods lift has been provided for the movement of crockery-trolleys between the upper floors and the wash-up at ground floor level. The cooking equipment is capable of providing between 1,600 and 1,700 full meals in two hours and seating has been provided for 400 at one time. Allocating half-hourly sittings, it therefore is possible to serve 1,600 meals between 11.45 a.m. and 1.45 p.m.

The remodelling of the dining club was carried out to the instructions of Mr. J. M. Harrison, Regional Architect, assisted by Mr. T. Idwal Roberts, Senior Assistant Architect, L.M.R.

The general contractors for the work were James Carmichael (Contractors), Limited, and among other contractors were:—

William Freer Limited; heating, hot water and ventilation
Carron Company; cooking equipment
Rashleigh Phipps & Co. Ltd.; electrical work
Aldous & Campbell Limited; goods lift
W. B. Simpson & Sons Ltd.; glazed tiling
Camden Tile & Mosaic Co. Ltd.; quarry tiling
Limmer & Trinidad Lake Asphalt Co. Ltd.; Colorphalte flooring

COURSE FOR CARTAGE CLERICAL AND SUPERVISORY STAFF.—A course for clerical and supervisory staff concerned with cartage work was held under arrangements made jointly by the Scottish and North Eastern Regions at the All-Line Commercial School, Faverdale Hall, Darlington, from September 12 to 16. The course, the first of its kind to be held in these Regions, was opened by Mr. C. P. Hopkins, Chief Regional Officer, North Eastern Region, who was accompanied by Mr. E. W. Arkle, Commercial Superintendent, North Eastern Region. Other officers present were: Mr. H. F. Sanderson, Assistant Commercial Superintendent, North Eastern Region and Principal of the School; Mr L. Meara, Road Transport Controller, Scottish Region; and Mr. F. T. Gray, Assistant to Commercial Superintendent (Cartage & Terminals), North Eastern Region. Nine representatives from each Region attended the course, and the programme covered a wide range of subjects relating to cartage work. Each subject was introduced by a short address and was followed by an open discussion. Considerable interest and enthusiasm was shown in the discussions.



The first-floor dining room at the Euston staff dining club

Modernisation of Euston Staff Dining Club

Remodelled staff dining club in Cardington Street, adjacent to Euston Station; left, the bar on the first floor; right, second-floor cafeteria

The kitchen showing, (left) Aga cooker, and (right) fish and potatoe fryers, boiling pans, and steamers

At the International Timetable Conference

Showing (left to right, standing) Sir Eustace Missenden, Chairman, and Mr. R. H. Hacker, Chief Officer (Continental), the Railway Executive: (seated) Messrs, Lorriot (French National Railways) and Dekleva (Jugoslavia)

Showing (left to right): Messrs. Widhoff (International Sleeping Car Company) and Dargeou (French National Railways), Sir Eustace Missenden, and Mr. W. R. Blankert (Netherlands Railways)

Herr Schrenk (left) and Herr Lukas (right) of the German delegation

A group of members of the Italian delegation

RAILWAY NEWS SECTION

PERSONAL

Permanent Member of Transport Tribunal

Mr. A. E. Sewell, M.Inst.T., formerly Joint (Railway) Chairman of the Road-Rail Central Conference, retired on September 30 from the position of Charges Adviser to the British Transport Commission, which he has held since 1947, and has taken up an appointment as a Permanent Member of the Transport Tribunal from October 1, until September 30, 1954.

Mr. P. R. Angus, Chief Mechanical Engineer, New Zealand Government Railways, left Great Britain for New Zealand on October 13. Mr. Angus was the last member of the New Zealand Railway Mission to leave, the other members having returned in August and September. In the main, the mission was in contact with United Kingdom manufacturers, but, at the same time, has been in contact with officers of British Railways.

Mr. O. V. Bulleid, formerly Chief Mechanical Engineer, British Railways, Southern Region, and now Consulting Mechanical Engineer, Coras Iompair Eireann, has been elected an Honorary Member of the American Society of Mechanical Engineers. Mr. Bulleid is hoping to visit America to receive this award and to address the annual meeting of the Railroad Division of the American Society of Mechanical Engineers in New York on December 1.

We regret to record the death on October 4, in his 82nd year, of Mr. James Warden Stubbs, who retired in 1933 from the position of Chief Telegraph Engineer, Buenos Ayres & Pacific Railway.

Engineer & Railway Staff Corps

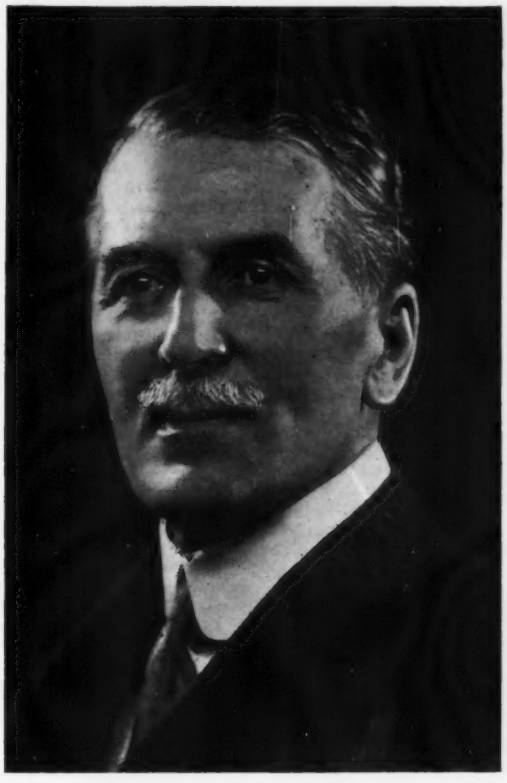
The annual dinner of the Engineer & Railway Staff Corps, R.E. (T.A.), was held on October 5 at the Charing Cross Hotel. Colonel Sir Eustace Missenden, the Officer Commanding, presided. The guests included General Sir Sidney Kirkman, Lt.-General Sir Kenneth Crawford, and Lt.-General J. F. M. Whiteley.

Memorial Service for Sir Herbert Walker

A memorial service for Sir Herbert Walker, General Manager, Southern Railway, 1923-37, and afterwards a Director of the Company, will be held at St. Martin-in-the-Fields, London, W.C., at 2.30 p.m., on October 19.

On October 5 the directors of the Self-Changing Gear Co. Ltd. gave a cocktail party at Londonderry House, Park Lane, London, W.1. The guests, who included a number of business friends and associates, were received by Mr. A. Gordon Wilson and Mr. W. J. Wakley.

Brigadier-General Sir Osborne Mance, K.B.E., C.B., C.M.G., D.S.O., who took office on October 1 as President of the Institute of Transport for 1949-50, is the British delegate on the Central Rhine Commission and the British member on the Transport & Communications Commission of the United Nations. He was born on October 2, 1875, and was educated at Bedford School. He was commissioned in the Royal Engineers in 1895, and served in the South African War as Deputy Assistant Director of Railways & Armoured Trains. Later he was employed on railway construction in Nigeria, and during the 1914-18 war served as Director of Railways, Light Railways & Roads at the War Office. He retired from the Army in 1924, and became Technical Adviser to the Ottoman Bank, a position he still holds. Sir Osborne Mance is a Director of the Bankers' Investment Trust Limited and of the Army & Navy Investment Trust Co. Ltd., and of the Port of Tangier Company. He was British Director on the board of the German Railway Company, 1925-30. His reports include those on the Austrian railways (1933) and on co-ordination of transport in East Africa (1936), and his publications, "The Road and Rail Transport Problem," "International Telecommunications," "International Air Transport," "International River & Canal Transport," "International Road Transport," and "International Sea Transport." During the recent war Sir Osborne Mance was Director of Canals at the Ministry of War Transport. He is a Foundation Member of the Institute of Transport, before which he has read important papers, and of which he was awarded the Triennial Gold Medal in 1926; he was elected to the council in 1943, and served as a Vice-President, 1945-48. He was made a K.B.E. in 1929.



Brigadier-General Sir Osborne Mance
President of the Institute of Transport for 1949-50

Mr. E. S. Hunt, District Goods Manager, London (Broad Street), London Midland Region, British Railways, who, as recorded in our October 7 issue, has been appointed Assistant Chief Regional Officer of that Region, joined the London & North Western Railway in 1912. During the 1914-18 war he served with the Royal Navy and the Royal Naval Air Service. After his return to railway service he held various positions in the Chief Goods Manager's Office, and in 1927 became Outdoor Assistant to the Goods Operating Manager of the L.M.S.R. He subsequently occupied other posts closely connected with inter-company working and pooling schemes, and was appointed London District Goods Manager in 1946. During the recent war Mr. Hunt, in addition to his other duties, acted as Liaison Officer for the Chief Operating Manager of the L.M.S.R. with the Admiralty, War Office and Air Ministry in connection with loading and unloading arrangements at all Service depots on that railway.

Mr. S. B. Warder, M.I.Mech.E., M.I.E.E., M.Amer.I.E.E., who, as recorded in our September 30 issue, has been appointed Mechanical & Electrical Engineer, Southern Region, British Railways, was born at Portsmouth in 1901, and was educated at Glasgow High School, and at the University of London. After serving an apprenticeship with Johnson & Phillips, Limited, he gained further experience with Ferguson Pailin Limited, and later as an engineer with the General Electric Co. Ltd. In 1927 he joined the Swedish General Electric Company (later Asea Electric Limited) as an engineer in the Export Department, and eventually succeeded to the position of Chief Engineer & Manager of that department, where he was actively associated with contracts for railways not only in this country but in many other parts of the world. He joined the Southern Railway in March, 1936, as Technical Assistant to Mr. Alfred Raworth, then Electrical Engineer for New Works, and while in that position represented the railways on many Government technical committees. Mr. Warder was appointed New Works Assistant to the Chief Electrical Engineer in August, 1943, and was primarily concerned with the plans for the future development and reconstruction of the electrified system. In 1946 he was one of a delegation which visited North America to study and report on the development of diesel-

A group of members of the Italian delegation

Herr Schrenk (left) and Herr Lukas (right) of the German delegation

Mr. E. S. Hunt

Appointed Assistant Chief Regional Officer, London Midland Region, British Railways

Elliott [*& Fry*

Mr. S. B. Warder

Appointed Mechanical & Electrical Engineer, Southern Region, British Railways

Mr. F. Munns

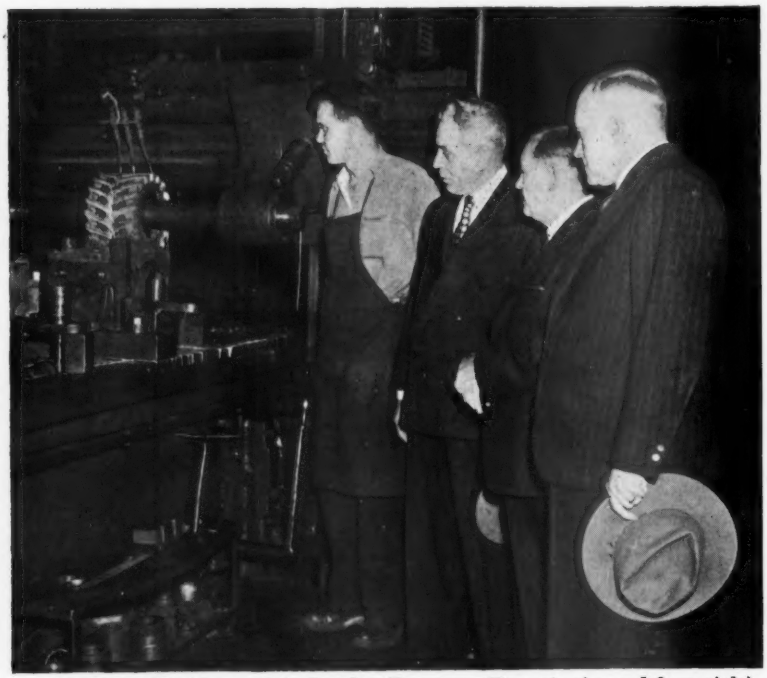
Appointed Carriage & Wagon Engineer, Southern Region, British Railways

electric traction and the possibility of its application in this country. He was appointed Assistant to the Chief Electrical Engineer in 1947, and Electrical Engineer, Southern Region, in January, 1948.

Mr. F. Munns, M.I.Mech.E., M.I.Loco.E., who, as recorded in our September 30 issue, was recently appointed Carriage & Wagon Engineer, Southern Region, British Railways, received his technical training at the Halifax Technical College, taking the full three-year mechanical course from 1905 to 1908. Mr. Munns was a pupil at Derby Locomotive Works under the late Sir Henry Fowler for 3½ years, and joined the S.E.C.R. at Ashford Works as Assistant Foreman in 1914. He was made Senior Foreman of the Carriage & Wagon Fitting, Machine and Underframe Shops in 1919. He was appointed Assistant Carriage & Wagon Works Manager, Eastleigh, in 1924; Assistant Locomotive, Carriage & Wagon Works Manager, Eastleigh, in 1929; Locomotive Works Manager, Eastleigh, in 1938; Works Manager, Ashford (Locomotives & Wagons), in 1941; and Works Superintendent, Eastleigh (Locomotive, Carriage & Wagon), in 1942.

Mr. W. R. Merton has been elected a Director of the Channel Tunnel Co. Ltd.

Lord Latham Visits Canadian National Railways Shops



Lord Latham, Chairman of the London Transport Executive (second from right), who is on a visit to Canada and the U.S.A., during a recent tour of the Canadian National Railways motive power and carriage shops at Point St. Charles. With him are Mr. N. B. Walton, Executive Vice-President, C.N.R. (right, holding hat), and Mr. A. C. Melanson, Works Manager

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SIR HERBERT WALKER—AN APPRECIATION

The following are extracts from an appreciation of Sir Herbert Walker, General Manager of the Southern Railway, 1923-37, who died on September 29, contributed to a recent issue of the *Southern Daily Echo* by Mr. R. P. Biddle, Docks & Marine Manager, Southern Region, British Railways:—

Southampton owes much to Sir Herbert Walker who had great faith in Southampton Docks. The New Docks there will be a lasting memorial to his memory, apart from the Avenue named after him. It is no exaggeration to say that but for the New Docks the progress of the war in 1939-40 might have then taken a very different course, with disastrous results to this country.

When the New Docks were in course of construction, the work was carried out in two stages. At the completion of the first stage the country faced a financial crisis, but it was Sir Herbert Walker's vision and foresight which persuaded the progressive board of the Southern Railway to make it known at once that it had sufficient confidence in the future of this country to go right ahead with the work on the second stage. It can be said without fear of contradiction that this decision recreated the spirit of confidence in industrial circles.

Sir Herbert Walker was not only a great man, but was a lovable character, although, perhaps, appearing to those who knew him none too well to be somewhat austere. He will be greatly missed, and those of us who are associated with the great port will revere his memory, realising that but for him the picture of Southampton might be a very different one.

Sir Cyril Hurcomb on Integration of Transport

Essential preliminaries outlined by the Chairman of the British Transport Commission

Sir Cyril Hurcomb, Chairman of the British Transport Commission, in an address to the Western Region Lecture & Debating Society on October 6, said that in the last twelve months substantial progress had been made towards the integration of transport by the Commission, in acquiring long-distance haulage and in extending its interest in road passenger transport. The date had not yet been fixed after which no haulier might engage in long-distance haulage, as defined in the Act, except under permit from the Commission, although it might be expected that that date would be fixed early in the New Year.

On the road passenger side the Commission's interests now included 100 per cent. ownership of the Tilling subsidiaries, including important companies in the West of England and in Central and North Wales; the acquisition of Scottish Motor Traction had put it in a strong position in Scotland. Nevertheless, progress with Area Passenger Schemes under Section 64 of the Act necessarily had been slow. An outline of proposals for dealing with the North-East of England recently had been published, and the Commission shortly would give its attention to other areas.

Relative Efficiencies

It was important for full integration that there should be some clearer idea as to what the relative efficiencies of each form of transport were likely to be in relation to future conditions and not merely to those prevailing at the moment. To take a simple example; the relative efficiency of rail and road in competing for certain traffics must be affected by the state of the physical equipment at the disposal of each. Until arrears of maintenance of track had been overtaken, and much obsolete coaching stock had been replaced, it was not possible to judge correctly or definitely what would be the most economic distribution of function between rail and road, or how the public choice would be exercised under more equal conditions.

It was necessary also to consider the improvements in efficiency which might be made by more extensive modernisation of rolling stock and equipment, increased mechanisation of many processes, such as was now being applied, and perhaps the extension of electrification or other new forms of motive power. The Commission had recently established a new research organisation. In each Executive there would be a Director of Research, or a Research Officer, and it was naturally in the railways that most progress had been made in the past in this matter. A Chief Research Officer had been appointed at the Commission and there had also been established an Advisory Council on which all the Executives were represented and which included several distinguished men of science from outside.

The mistake had to be avoided of thinking that only one particular form of transport was going to make progress. In considering the relations of road and rail it had to be remembered that modern methods of road construction, improvements in the vehicles and their adaptability to the conditions of traffic, and the great improvement in the life of tyres, made it necessary to review, on much better data than were at present available, the comparative costs of carrying goods or people by road and by rail under various conditions of traffic.

There had to be borne constantly in mind the assistance which a properly devised scheme of charges could give towards guiding traffic into channels "which will yield the best result to the transport undertaking as a whole, while leaving the trader or traveller freedom of choice," provided he paid the appropriate price for what he chose. The experts of the railway companies had been thinking about these problems long before nationalisation, and had discussed them, in certain aspects, with representative road hauliers. But even the most expert had not found it easy to produce a brand new scheme to take the place of the century-old mass of statutory rules and limitations under which, in theory, railway traffic had to pass.

Progress Soon

Before long the Commission would be able to show marked progress in this matter. Its new scheme of charges would, he hoped, be based on a common and simplified classification of goods for rail, road and water; on common conditions of carriage, and on a common method of calculating distances. An interesting possibility would be to base distances on the ten kilometre squares of the national grid. How far equal rates could, or should, be charged for different services was a much harder nut to crack. Obviously, if all rates were without exception to be based strictly and literally on cost, it would only be by coincidence that the rates for different forms of transport would be identical. But in this matter it was necessary to be guided by practicability and approximations. Bearing that in mind, Sir Cyril Hurcomb said that he hoped that even after giving proper weight to considerations of cost, and greater weight than had hitherto been given to the loading characteristics of the traffic, scope would be found for applying equal charges over medium distances; though for very short, or for very long, distances the charges scheme was likely to influence traffic to use the more suitable and economical method of transport.

Referring to the new form of accounts adopted by the Commission, he said that adoption of the principle of balancing and compensating the results of the Commission's different activities was one of the great advantages of the conception of the Transport Act, because it led to greater freedom of policy in the development of any part of the undertaking needing development, in interchange of facilities, and in the matter of charges.

While this was so, it was essential to be clear that this integration of finance did not mean that the Commission had instituted a general pool and invited any particular Executive that might feel so inclined to dip as deeply as possible into the pool and pour as little as possible into it. Partly with that in mind, the financial administrations of the Executives had been left separate. He was afraid that the expression "pooling of receipts" which was often quoted in the Press was sometimes used to imply that the Commission's revenue from all traffics went into a common till, out of which all the expenses were paid indiscriminately, with the result that any loss or shortfall incurred in one section was offset and obscured. That was not so. Each Executive was definitely credited with its own traffics and earnings and had to watch its expenditure, so as to make its maximum contribution towards central charges.

Sir Cyril Hurcomb went on to deal with the depreciation policy adopted by the Commission. He emphasised that the Commission had made full provision in the year 1948 for depreciation of rolling stock, plant and other assets in this category, and for renewal of ways and structures.

In respect of rolling stock and other assets in the first category, replacements were capitalised and were not charged to revenue; it was therefore necessary to write off the capital cost of such assets over their useful lives. In respect of ways and structures such as bridges and permanent way, on the other hand, these were regarded as requiring constant renewal rather than total replacement individually, and the actual cost of renewal was charged to revenue and not to capital. In 1948, the Commission expended or reserved £163,000,000 on maintaining the undertaking during the year, and charged £20,000,000 of this to the special funds set up during the war to meet the arrears of maintenance which were then accumulating. The charge to revenue for 1948 was, therefore, a total of £143,000,000. This included provision of nearly £21,000,000 for depreciation, which was the full provision needed for the year in relation to the book value of the assets and to their estimated useful lives.

Unlike the ordinary commercial concern, the Commission (and the consumers) were already bearing the cost of redeeming the capital of the Commission as a whole; secondly, the Commission was financed by "loan" capital and not by equity capital. For example, if the Commission bought a locomotive for £10,000, it did so in effect with borrowed money. The cost was capitalised, and thereafter a yearly depreciation provision was made to spread the cost over the useful life of the locomotive. At the end of the locomotive's life the Commission had recouped the cost by the annual charges to revenue and were in a position in effect to repay the money borrowed. If it was then decided to buy another locomotive, and this new locomotive cost more or less than £10,000, the sum actually required was borrowed and interest was paid on the new amount. If it cost £15,000, then presumably the general price level had settled at 50 per cent. above the old price level and the addition of 50 per cent. to the burden for interest and depreciation was justifiable, especially in view of the fact that the Commission was slowly amortising its capital as a whole.

Western Region Photographic Competition.—Mr. L. H. Hobbs, a clerk in the Divisional Superintendent's Office at Exeter, has secured the shield for the best photograph submitted in the annual photographic competition sponsored by British Railways, Western Region, Staff Association, entries in which have been on exhibition at Swindon baths. This entry has also been awarded a silver-plated plaque as the winning entry in the garden scene section, and another by the same competitor in the photographs of children section has gained a bronze plaque. The first prize in the holiday snapshots section was won by Mr. L. Discombe, an engineman at Exeter; in the children's study section by Mr. R. H. N. Bryant, Locomotive Works Manager, Wolverhampton, who also won this prize last year; and in the interior scenes and pets section by Mr. W. Searle, engineman at Penzance.

Relative Merits of Steam, Electric, and Diesel Traction

Comment by Mr. Harold Rudgard in a recent paper on railway motive power

In his paper "Some Forms of Rail Traction," read before the Institute of Transport, Metropolitan Section, on October 3, Mr. Harold Rudgard, Chief Officer (Motive Power), Railway Executive, traces the history of mechanical traction from the latter half of the eighteenth century, when the steam engine was placed on wheels by Cugnot, Murdoch, Evans and Symington. There is reference to various major developments, with mention of steam-turbine locomotives, electric, diesel and diesel-electric traction, as well as light units and railcars, and the gas-turbine locomotive. Comment is made on the merits of various forms of traction, of which the following is a summary:—

Much has been written on the relative merits of the steam, electric and oil forms of railway traction, and emphasis has been made of the fact that this is a coal producing country. From a strategic point of view, electrification of railways in this country may be expected to increase its vulnerability in time of war: during the late war a number of trains complete with locomotives were made available for use on the Southern Railway in the event of serious damage to the electrification.

Wartime Record of Steam

One cannot but pay tribute to the work of the steam locomotive during the last war. At the outbreak of hostilities in 1939, steam locomotive practice had reached the high standard which was to stand it in such good stead during the following six years. For days, months and years, the wheels of the rail transport war effort kept turning, locomotive availability increased from sheer necessity, and, in many cases, the interval between routine examinations was extended to improve utilisation. Further, although the end of hostilities brought about a reaction from which we have only partially recovered, the steam locomotive added greatly to its laurels by its outstanding effort in time of need.

The widely expected decline of the steam locomotive in favour of electrification, so frequently prophesied from the beginning of this century has, so far, failed to materialise, but a rival has now appeared in the form of the compression-ignition engine combined with electric transmission, as are amplified by the whirlwind of dieselisation in the U.S.A. during the past six years. In the present position of this country, a like revolution would not be an economic proposition. Here, the prevailing necessity is to obtain maximum mileage from existing motive power units before they are outmoded.

The simplicity and low initial cost of the direct driven reciprocating locomotive make it still the most efficient source of motive power for rail traction in this country in spite of its low thermal efficiency. To maintain this position it must increase its daily revenue-earning hours, and the time spent in preparation, disposal and maintenance is, therefore, the chief problem for motive power departments. Apart from the locomotive itself, continual modernisation of motive power depots is of paramount importance. Many motive power main and garage depots are long since outdated, having been designed for the traffic requirements and smaller locomotives of a period now ended. Lack of space, preparation and disposal facilities are handicaps that must be overcome to enable quick servicing of the steam locomotive. Coaling plants, ash-disposal plants and water columns should be laid down to make possible fast and progressive disposal. The shed yard should, as nearly as possible, be straight, avoiding bottle-necks, while congestion at peak periods can be surmounted with the double-ended type of running shed using a triangle, if possible, to dispense with the need for a turntable. Engine preparation of the modern locomotive is gradually following automobile practice as the maintenance staff take over an ever-increasing proportion of the servicing. This is made possible by the use of mechanical lubricators, of tender and carrying-wheel axle boxes, which only require attention at fixed intervals, by decreasing user of worsted syphons and by the use of roller bearings throughout.

The twin assets of reliability and availability combined with constant efforts to increase the thermal efficiency will maintain the position of the steam locomotive as the mainstay of rail traction for the trunk lines of this country. Despite prophecies of multi-cylinder locomotives with boilers of intricate design, the steam locomotive will mainly exist in its known form until, in years to come, modern and economical power stations will herald the era of total electrification and render mobile unit rail traction obsolete except for special purposes. In the meantime, existing locomotive test stations should be used to the full for research to improve the efficiency of the steam locomotive.

The supremacy of electric rail traction for suburban working with multiple-unit trains for rapid acceleration is not to be denied. Very little has been done, however, with regard to electrification of main lines in this country, although a start has been made on the Manchester-Sheffield-Wath line, which is one of the heaviest loaded sections of the British railways, this is expected to be completed in 1954. There will be 86 locomotives used on this section.

Main-Line Electrification

The electrification of main lines with locomotive-hauled trains presents a different problem to suburban electrification. With the latter, although economies in operating costs are sought, the greatest return is generally from increased revenue resulting from increased traffic due to cleaner, faster and more frequent electric services. In the case of main lines, no increase in traffic may be expected. Therefore, justification for electrification must rest on the economies in working expenses to be obtained from electric traction, as compared with steam traction. When electrification is projected it will probably be in the form of a progressive plan to convert section by section until the whole is complete. If the large hydro-electric schemes in hand at Loch Sloy and Loch Tummel, in Scotland, can produce sufficiently cheap power, there may be justification for the conversion from steam traction, to the Highland and West Highland sections; however, there must be an established density of traffic to warrant electrification.

At present the maintenance of diesel units is a specialised job, but it will be essential in the near future for maintenance staff to be equally proficient in steam and oil engine repairs, and, in future training, diesel maintenance will be a necessary part of the apprentice's curriculum. The training of enginemen, long accustomed to steam traction, would require a long term policy, necessitating motive power instruction trains carrying details of diesel-electric and diesel-mechanical units for demonstration, while lectures could be given on operation and on the faults liable to arise in traffic.

The servicing of diesel units in the motive power depot would be facilitated by the provision of cab-level platforms approached by plain ramps to footplate level, between shed roads with piping and conduits for oil, water, compressed air, steam, lighting and power plug points, in addition to sand piping from an overhead source. As with the steam locomotive, oil locomotive maintenance would be based on a prevention and progress schedule based on a knowledge of actual performance and operation.

Working costs of diesel and diesel-electric shunting locomotives are generally lower than for steam locomotives. This is partly due to one-man operation. On main line service operating costs of diesel units do not at present show any outstanding advantage, such as is possible in the U.S.A., where diesel fuel oil costs less than a third of its price in this country. The combustion turbine locomotive is still in the embryo stage and has not yet been tried out in this country. With the use of gasified coal, however, the natural product of Great Britain, this type of power unit may yet have great possibilities.

The advantage of diesel and diesel-electric light units over steam is well established, especially outside Great Britain. Our steam railcars were usually under-powered, as were the early types of oil railcar, and stalling was a frequent occurrence with and even without a trailer.

Looking at the problem of rail traction from a long term point of view, it becomes apparent that we are now passing through a period of transition greater than any other in the history of railway transport—a period in which diesel-mechanical, diesel-electric and combustion turbine power-units will have their period of development and utilisation, but in which one cannot but think that the overall tendency is leading to nation-wide electrification in years to come.

Brazilian Railway Inquiry.—The Brazilian House of Deputies has approved a motion proposing the appointment of a commission to inquire into the takeover of the Leopoldina, Great Western of Brazil, and Bahia South Western railways. The proposal was based partly on allegations that the railways were in an obsolete condition and that the sterling reserves would have been better usable for other purposes. From all the available evidence it appears that the motion has a political aspect and is aimed at the Government rather than the companies. The inquiry is scheduled to be completed within 120 days. It may delay the ratification of the purchase agreements or the remittance of funds. At the same time the Brazilian Ministry of Transport has appointed another commission to investigate the alleged "subornation" in the takeover of the Bahia South Western Railway.

Staff & Labour Matters

Railway Wages Claim

The delegates at the special conference of the National Union of Railwaymen, held in London on September 29 and 30, severely criticised the findings of the Board of Conciliation concerning the rates of pay and conditions of service of conciliation, salaried, and railway shops staff. They also commented on the competency of the members of the Board to appraise the situation, because of lack of understanding of railway work. Writing in *The Railway Review*, the official organ of the N.U.R., on October 7, Mr. J. B. Figgins, General Secretary, stated:—

"The deepest impression made on my mind by the delegates to the special general meeting which had been called on September 29 and 30 to consider the recommendations of the Conciliation Board was the evident high sense of responsibility with which they approached this most difficult problem.

"All of them were obviously convinced, as the final decision of the conference clearly stated, that in view of the fact that we had agreed before hand to accept the recommendations of the Board, we had, therefore, no alternative, were our honour as a union to remain unsullied, but to accept such recommendations despite their unpalatability.

"As, however, the decision of the conference made public, that did not mean that the delegates accepted that the recommendations were in accordance with the evidence (especially that of our union) submitted to the Board. On the contrary, the delegates were firmly convinced, after an examination of all the facts, that the recommendations were not only indisputably unjust, but inimical to the future efficiency of the railway section of inland transport.

"It is clear that those who made these recommendations did not understand railway work, and if efficiency is to be attained it will be incumbent on the Railway Executive to give most serious consideration to the aggravation of the problems that we as a union were endeavouring to solve.

"I am perfectly certain that the representatives of the Railway Executive could not but have a sense of embarrassment when they examined the recommendations and, just as in another case, that of railway shopmen, they will be compelled by the facts of the situation to appreciate not only the necessity but the urgency of handling the situation in a more practical way than we could possibly expect from people not conversant with railway operations.

"The delegates, actuated not only with a desire to obtain justice, but to render real and efficient service to the national interest, decided that the matter could not be left where it was. Hence, they, by an overwhelming majority, decided to instruct the executive committee to re-open immediately negotiations with all the Executives under the Transport Commission with a view to an improvement in wages being obtained for low-paid employees, and they considered no employee should be in receipt of less than a £5 standard weekly wage exclusive of the London allowance.

"This is now the official policy of the union. It is, therefore, essential that its meaning should be clearly understood by all. It means that the executive committee must bend all its energies in a supreme effort in the negotiations with the respective Executives to raise the 92s. 6d. rate to that of £5 for the lowest-paid grades.

"At a special meeting of the executive committee on October 4 the question as to the methods to be employed in attaining this objective received the most careful consideration. It was felt that in view of the radical change in the economic situation and the increasing difficulties that beset the Trade Union Movement it might be possible for the other railway trade unions to associate themselves jointly with our claim.

"With this object in view, the executive committee, very wisely in my opinion, invited the executives of the other railway unions to meet them for an exchange of views which it was hoped would result in a united effort on behalf of the claim."

When the Board of Conciliation was first announced by the Minister of Labour, there was objection from certain quarters of the N.U.R. to the appointment of Sir John Forster as Chairman of the Board, as he was Chairman of the Railway Staff National Tribunal which in March, 1949, rejected the N.U.R. claim for a flat-rate increase of 12s. 6d. a week. On Sunday the Manchester district council passed a resolution that the executive of the N.U.R. should boycott future negotiating machinery with which Sir John Forster is concerned.

As President of the Industrial Court, Sir John Forster has adjudicated in many industrial disputes, including those submitted by the railways.

With regard to the other members of the Board, Sir Harold Barton is a partner in a London firm of chartered accountants, and was Financial Director of the National Dock Labour Corporation from 1941 to 1947, being appointed Vice-Chairman of the Docks Labour Board in 1947. Mr. Charles Murdoch is a Member of the Scottish Gas Board and was formerly Secretary of the Scottish T.U.C.

Mr. A. J. Espley was at one time Managing Director and Vice-Chairman of Timothy Whites & Taylors. He was also a member of the Savoy Hotel strike committee of inquiry. Mr. John Brown was formerly Secretary of the Iron & Steel Trades Confederation and was a member of the Moelwyn Hughes Commission which reviewed the rates of pay in the cotton industry.

National Minimum Wage

At the time of going to press, there has been no indication that the other railway trade unions are prepared to join the N.U.R. in submitting a joint claim to the Railway Executive for a minimum wage of £5 a week, and no approach has been made to the Railway Executive by any of the unions concerned.

Writing in the October issue of the journal of the Transport & General Workers Union, Mr. Arthur Deakin, General Secretary, sounds a note of warning on the suggestion which has been made in some quarters regarding the establishment of a national minimum wage. He refers to the warning of the Chancellor of the Exchequer that, if some wage increases had to be granted to the lower-paid workers, the wages of higher-paid grades could not be increased also to maintain differentials or relativities.

"This argument," writes Mr. Deakin, "presents grave difficulties from the point of view of the wage structure in this country. Since 1920, the margin between the lower-paid and those receiving higher rates where particular skill is involved, or where men have served their time in an industry, has been narrowed considerably. In addition one must give consideration to the question of incentives between one grade and another. It follows, therefore, that a suggestion of this character to bring the lower-paid men still nearer to those who are somewhat better paid, raises issues of considerable importance.

"Suggestions have been made in regard to the possibility of fixing a national minimum, and, in the General Council of the T.U.C., the position has been argued at some length, but the question arises as to how this could be achieved even if it was considered desirable. Whether or not those who are receiving higher rates of pay would accept this medium as satisfactory, or even by way of a temporary adjustment of the difficulties confronting us, is very uncertain. Then, again, the question arises by what method this could be achieved. Would it be by Government direction or could it be achieved through the existing machinery of negotiation? My view is that it would be a major disaster to interfere with the existing methods of negotiation having regard to the factors which must be taken into consideration when negotiations are taking place in various industries. We could not lightly undertake action which would destroy the differentials which, over a long period and after much consideration, have been arranged in industry. To attempt this would mean that we should have chaos and confusion, and, above all, there would be a great resentment among the workers on the job."

These views on the destruction of differentials are in line with the attitude of both the A.S.L.E. & F. and the Confederation of Shipbuilding & Engineering Unions to the offer of the Railway Executive made to the unions last June to increase the rate of pay of the lower-paid worker by 3s. a week with a gradual tapering towards the higher ranges. Both unions expressed the view that the suggested increases would destroy the relativity between grade and grade in the railway service, a matter on which agreement had been reached after protracted negotiations after the recommendations of the Court of Inquiry in June, 1947.

G.N.R.(I.) Retrospective Wage Increase

The Irish Railways Board agreed in Dublin on October 6 that increases of 3s. to 3s. 5d. per week granted to Great Northern Railway employees in the conciliation grades in Eire should be retrospective to October 29, 1948, on the same basis as similar increases given to Northern Ireland employees. The Board had considered an application by the National Union of Railwaymen to have the increases, which had been granted as retrospective to January 1, 1949, made retrospective to the first full pay period in July, 1948. About 1,400 employees are affected. It was stated by Mr. G. B. Howden, General Manager of the G.N.R. (I.), that if the claim was made retrospective to July, 1948, the extra cost to the company would be £6,000.

G.N.R.(I.) Staff Curtailment

One hundred and fifty employees of the Great Northern Railway (Ireland) will be paid off within the next fortnight. In the traffic department 100 employees in both salary and wages grades have been declared redundant and 50 cleaners in the locomotive department will lose their jobs. Reduced timetables made necessary by the company's financial position have resulted in the curtailment of staff.

Mr. Bulleid's Views on Irish Railway Potentialities

Wider coaches, and the possibility of using peat as locomotive fuel envisaged

Mr. O. V. Bulleid, who has taken up his new post as Consulting Mechanical Engineer to Coras Iompair Eireann, was interviewed on Radio Eireann on October 8, agreed that the Irish railways, which had contributed Aspinall, Ivatt, and Maunsell to Britain, were now "getting some of their own back." He mentioned his personal association with all three; he had married Mr. Ivatt's daughter, succeeded Mr. Maunsell as a C.M.E., and known Sir John Aspinall as a family friend.

To newspapermen at a Press conference, Mr. Bulleid said that he would not yet publish the details of the new C.I.E. 60-ft. passenger coach, of which 25 are to be built next year and 50 in the following year, as he was discussing with the Chief (Civil) Engineer of C.I.E. the practicability of designing a wider coach than that contemplated.

Irish coaching stock had been built 9 ft. 3 in. wide and otherwise to the British convention in contour, curved roof, and seating arrangement. He felt that the Irish gauge of 5 ft. 3 in. offered more scope, and he would like a coach 10 ft. 6 in. wide, giving either roomier accommodation or seating seven a side in the compartment, as against the present six, thereby both increasing the passenger capacity and reducing the number of vehicles required.

Mr. Bulleid declared that he had every intention of looking at everything they had done in the past as out of date. In any event, they could not just take something from England and put it down in Ireland. The local problem had to be studied on the ground. The new coaches would be built in Ireland. They had a problem, calling for detailed investigation of the potentialities of Inchicore Works, of finding work for all their men. A Government direction had been given that there must be no discharge of employees for redundancy, and the Chairman of C.I.E., Mr. T. C. Courtney, was also anxious that every man in the place should be fully occupied.

Discussing traction methods, Mr. Bulleid said that selection of method was a matter for the C.I.E. Board. He quickly dismissed electrification as being unjustified by the traffic, which was of low density. One of his first tasks would be to advise on the utility from the view point of Irish requirements of the five 535-h.p. diesel-electric shunters which had been put into service under a previous administration, and of the two 935-h.p. mixed-traffic diesel-electrics now being completed at Inchicore.

He considered there was unlikely to be sufficient continuous work on the C.I.E. to enable full advantage to be taken of the availability even of the shunters. He quoted £20,000 for a steam locomotive and £100,000 for an equivalent diesel-electric locomotive as typical of the disparity in initial cost.

Fuel Supplies

On the question of fuel supplies, especially in war-time, he said: "It can be argued that here in Ireland it does not matter whether you use imported coal or imported oil, but the coal at least is closer to hand, in England. It has been estimated that the known British coalfields have an unexpired life of 800 years, at maximum consumption, whereas the world's known oil supplies are being depleted so rapidly as to cause the keenest anxiety."

Mr. Bulleid said he believed that people in Ireland and Britain had been misled by American practice. In the U.S.A. a 3,000-mile run could be found for the diesel-electric, whereas about 400 miles was the limit in Britain and 160 in Ireland. The gap in the comparative availability figures of steam and diesel-electrics was being narrowed, although it could not be closed. Improved water treatment, for instance, had been largely responsible for the fact that they could now run a steam engine for 60 days without washing out, whereas seven days was the maximum period previously.

Having referred to his "Leader" class design, Mr. Bulleid indicated that if he were designing a new standard steam locomotive for the C.I.E. he probably would select a medium power 0-6-0 tank. He mentioned that the reduction in C.I.E. locomotive stock, which had been recommended in the Milne Report, already had progressed far, and about 100 engines would be withdrawn to bring the stock to 550.

Mr. Bulleid expressed interest in the turf (peat) fired steam-generating station which is nearing completion for the Electricity Supply Board at Portarlington and which, from 120,000 tons of machine-cut peat, the only abundant fuel in Ireland, will produce about 60,000,000 units of current annually. "I have thought," he said, "of the ideal of a locomotive burning turf. It is only a dream at the moment, but that power station at Portarlington does suggest that turf as an Irish railway fuel must receive serious consideration. Indeed, I have just sent a sample of peat to an analyst for examination. It is said that a very valuable insulating material can be obtained from peat as one of the by-products of combustion. If this is true, then you would have even further justification for using it here as a locomotive fuel."

Future of Belfast & County Down Railway

On September 26, as was reported in our issue of October 7, the Northern Ireland Transport Tribunal began its inquiry into the application by the Ulster Transport Authority for the closing down of certain sections of the Belfast & County Down Railway. Members of the Tribunal include Sir Anthony Babington, K.C., Chairman, Mr. R. G. Manson, C.I.E., and Mr. M. P. Sinclair, F.C.A.

The hearing was resumed on October 3, when Mr. A. Morrison, Chief Officer (Special Duties) of the U.T.A., continuing his evidence, said that about 11,000 were employed in the whole undertaking and the number of workers taken over with the B.C.D.R. was 852. It was the general policy to absorb any people who would lose employment in the event of a closing order of this character being made, and nothing would be done in that connection without consultation with the trade unions.

Mr. Morrison said, also, that the railway had reached a point where something must be done. The coaches were in no condition to attract traffic or to hold traffic, and if this application did not succeed, then immediate steps would have to be taken to renew the railway stock. The average age of the coaches was 43½ years.

He could see no way of injecting the railway with new life by the withdrawal of road services with any chance of practical results. Neither could he see any way of partially withdrawing road services without inconvenience to the public. The amount required to rehabilitate the sections which it was proposed to close would be £639,840 and the expenditure of that sum would not improve trading results in any material way. A 10 per cent. increase in the volume of passengers carried by new rolling stock would bring in an additional revenue of about £10,000. The Northern Ireland Road Transport Board had purposely refrained from providing facilities required in the area served by the railway because it was felt that at some time there would have to be an amalgamation.

Mr. F. A. L. Harrison, who represents the Down County Council, said that during the war buses had been taken off the Bangor route, resulting in increased railway traffic, and he asked if that could not be tried again. Mr. Morrison replied: "We have not contemplated any idea which would inconvenience passengers in County Down merely to keep a railway line open—that is what it amounts to—and I am convinced that it would not put the railway on a remunerative basis."

Mr. Harrison submitted that if rail services were brought up to date, there would be a flow of the public back to railway traffic, and expressed the opinion that the comparable costs of working freight on the railway and on the road showed a great advantage to the railway.

Mr. Morrison said that there were no means of comparison and also that the profitability of diesel railcars would depend on potential traffic.

Mr. Harrison said that 45,000 tons of merchandise were carried on the main B.C.D.R. line in 1948, and, placing loading at between two and three tons per 5-ton lorry, thought it would mean that between 300 and 450 lorry-journeys would have to be made each week.

Mr. Morrison replied that such figures had no relation to practical operations. Including coal and minerals as well as merchandise they estimated the traffic to be about 2,000 tons a week and they could cope with that.

Counsel asked if he agreed that there should be an inquiry into the value of the transfer of road freight to the railway services. Mr. Morrison, replying, said that they did examine the position, and came to the conclusion that more economy could be secured by transferring freight to the road than the other way round.

Mr. Morrison said that of the total of about 80 miles it was proposed to close down some 65 miles. Only 11 miles to Bangor and three or four miles from Newcastle to Castlewellan—where the line connects with the Great Northern system—would be kept running. The profits from the sections of the line it was proposed to retain, amounting to between £23,000 and £24,000, would show a 5 per cent. return on the price which had been paid for the entire undertaking by the Ulster Transport Authority.

He agreed that no experiments had been carried out to see what number of extra passengers could be attracted to the railway by the provision of more comfortable carriages. Some £500,000 to £600,000 would have been required for new rolling stock, and such expenditure, even had it been possible, would have been imprudent.

The hearing was adjourned.

British Railways Freight Services

A review of progress made in the restoration of fast freight services and an outline of the plans prepared for their further improvement

At a press conference in London on October 11, presided over in the first instance by Sir Eustace Missenden, Chairman of the Railway Executive, Mr. David Blee, who later took the chair, and Mr. V. M. Barrington-Ward, Commercial and Operating Members respectively of the Railway Executive, outlined the various steps taken by British Railways to regain pre-war freight facilities, and described the progress made so far in quickening transits and modernising equipment and rolling stock.

It was claimed that important results in simpler or more economical working were being achieved from the unification of the railways, and that much progress had been made in working the railways as a single integrated system. Indeed, so far from the unification of railways making contacts more remote, British Railways were out to maintain and improve the personal touch in relationships with the customer. Special training courses were being run for salesmen, while in cities and towns, where traders had hitherto had to deal with separate representatives for each Region, one representative would act on behalf of all the Regions. A complete reorganisation of the District Commercial Offices had been completed in Scotland and was being worked out in England and Wales.

More and Faster Freight Trains

Most of the 539 express freight train services which in 1939 were operating between principal centres in Britain were discontinued during the war, and a railway priority since the war had been the restoration of these important services. During 1948 a total of 316 express freight services were restored or newly inaugurated and by the end of that year 492 were in operation. The number had since been further increased to 555, or 16 more than in 1939. In addition, 971 other freight services (495 in 1948 and 476 in 1949) had been speeded up, from 15 minutes to 2 hours or more, despite the limiting factors of deferred maintenance, fuel difficulties, and so on, which difficulties were being similarly overcome in the improvement of passenger services.

In addition to the day-to-day study of transits a complete census of the transit time of every wagon was frequently made with the object of finding out where and how any delays occurred and how they could be eradicated. Every effort was being made, also, to attain the highest degree of punctual working. The question of affording the best possible service was one engaging daily attention in connection with bulk traffic and also small consignments. Timings of principal express freight services now operating are given in the Table.

Modernised Traffic Controls

During recent years, railway control centres had been modernised and equipped with up-to-date communications which enabled constant touch to be maintained with the movement of traffic throughout the country, and these improvements, many of which were introduced during the war to cater for the exceptional traffics then passing, were now proving their worth in peace. Extensive improvements had also been made to a large number of marshalling yards. These enabled trains to be dealt with more expeditiously and thereby improved transits and expedited deliveries.

Since January 1, 1948, a total of 91,000 new wagons and 6,000 new containers had been authorised for construction by the end of 1950, and the programme for 1951 was now in its final stages. Increased availability of wagons might be expected by reason of improved operating reflected in the better average round-trip time and by reduction in the number of wagons under or awaiting repair.

Arising from railway unification, it was now possible to plan the re-routing of traffics by routes which, in many cases, were more direct than those used in the days of the separate companies. This had also enabled flows of traffic hitherto passing over alternative routes to be merged, thus securing economic block loads of traffic for long-distance destinations. The re-routing of traffic was a task of some magnitude and of considerable importance as it would speed up deliveries and also help the quicker turn-round of wagons.

The following are examples of typical routes where considerable saving in transit time has been achieved:—

Harrow & Wealdstone (L.M.R.) to Gorseinon (L.M.R.): Previously traffic passed *via* Shrewsbury, but now routed *via* London, saving 53 miles.

Hawarden Bridge (Shotton Iron Works) to Falkirk by the former L.N.E.R. system: This traffic passed *via* Berwick, but now passes *via* Carlisle, saving 56 miles.

Stafford Common to Wigan, ex *L.N.E.R.:* Traffic passed *via* Bulwell now *via* Stafford, saving 83 miles.

Mallaig, ex *L.N.E.R., to Birmingham,* ex *G.W.R.:* Traffic passed *via* Berwick, but now *via* Carlisle, saving 34 miles.

Steps were also being taken to direct flows of traffic between big centres over the most effective routes. At Sheffield more than one depot was forwarding traffic to Birmingham, and *via* different routes, whereas by concentrating traffics for Birmingham at one Sheffield depot and over one route, quicker transit had been achieved. As these schemes were introduced, traders at each centre were being supplied with a copy of an "Allocation Booklet," which indicated the stations to which they should load their goods to get the benefit of the improved method of despatch.

Continuing the work begun by the former railway companies in modernisation of freight handling by the introduction of mechanical equipment designed to do work formerly performed manually the Railway Executive had conducted during the past two years a close examination of a number of goods depots. Although the scale on which such mechanisation schemes could be undertaken today was restricted by the limitation on capital expenditure it was anticipated that work would begin on some of them in the near future.

Small consignments, *i.e.*, those of less than a wagon load, were formerly accepted at any of the 6,000 goods stations on British Railways, whereas under zonal concentration schemes these small consignments were being conveyed by road services through 263 railheads and 280 subrailheads for rail truck haul and subsequently radial road delivery. By the

BRITISH RAILWAYS FREIGHT SERVICES

Services	Forward		Return	
	Dep.	Arr.	Dep.	Arr.
London—Bristol	8. 5 p.m.	12.54 a.m.	9.20 p.m.	1.20 a.m.
London—Plymouth	9.10 p.m.	6.35 a.m.	5.21 p.m.	3.42 a.m.
	10. 0 p.m.	6.51 a.m.	9.37 p.m.	5.30 a.m.
London—Cardiff	10.20 p.m.	4.42 a.m.	10.45 p.m.	4.55 a.m.
London—Birkenhead	9.10 p.m.	5.31 a.m.	7.45 p.m.	4.10 a.m.
London—Grimsby	12.47 a.m.	7.30 a.m.		
London—York	3. 5 p.m.	8.53 p.m.	1.52 a.m.	10.43 a.m.
	11.30 p.m.	5.45 a.m.	9.50 p.m.	6.20 a.m.
London—Newcastle	3. 5 p.m.	11.32 p.m.	9.55 p.m.	9.55 a.m.
	11.30 p.m.	7.40 a.m.	11.30 p.m.	10.43 a.m.
London—Edinburgh	3. 5 p.m.	4. 5 a.m.	6. 4 p.m.	9.55 a.m.
	11.30 p.m.	11.40 a.m.	8. 5 p.m.	10.43 a.m.
York—Edinburgh	11.10 p.m.	5.35 a.m.		
Thames Wharf—Edinburgh	10. 5 p.m.	1.21 p.m.		
Edinburgh—Leicester			6. 5 p.m.	5.51 a.m.
Newcastle—Leicester			9.55 p.m.	5.51 a.m.
Edinburgh—Doncaster			6.30 p.m.	2.45 a.m.
Newcastle—Doncaster			10. 4 p.m.	2.45 a.m.
York—Doncaster			12.32 a.m.	2.45 a.m.
Hull—London			8.50 p.m.	3.25 a.m.
Doncaster—London			10.24 p.m.	3.25 a.m.
Ardsley—London			9.30 p.m.	6. 5 a.m.
London—Southampton	11.20 p.m.	3.30 a.m.	12. 3 a.m.	3.30 a.m.
Dundee—Carlisle	8.54 p.m.	4.51 a.m.		
Aberdeen—Edinburgh	9.45 p.m.	3.21 a.m.		
Glasgow—Aberdeen	7.45 p.m.	1.55 a.m.	9.15 p.m.	4.40 a.m.
London—Glasgow	2.55 p.m.	3.45 a.m.	6. 0 p.m.	7.23 a.m.
London—Carlisle	2.40 p.m.	12.20 a.m.		
Carlisle—Glasgow	1.25 a.m.	4.54 a.m.		
London—Leeds	6.40 p.m.	3.47 a.m.	3. 0 p.m.	11. 0 p.m.
	9.20 p.m.	5.16 a.m.	8.30 p.m.	3.27 a.m.
	11.50 p.m.	7.25 a.m.	9.30 p.m.	5.32 a.m.
London—Manchester	7. 0 p.m.	2. 6 a.m.	8.28 p.m.	2.41 a.m.
	10.40 p.m.	6.42 a.m.	10. 0 p.m.	3.57 a.m.
	9.35 p.m.	6.10 a.m.		
Stockport—London			10.23 p.m.	3.37 a.m.
London—Liverpool	7.40 p.m.	1.35 a.m.	8.30 p.m.	2.55 a.m.
Birmingham—Bradford	10. 8 p.m.	3.20 a.m.	8.53 p.m.	1.10 a.m.
Birmingham—Leeds	10.10 p.m.	4. 0 a.m.	8.50 p.m.	4.55 a.m.
Bristol—Leeds	4.48 p.m.	3.40 a.m.		
Birmingham—Bristol	2. 5 a.m.	4.58 a.m.		
Birmingham—York	8.50 p.m.	2.35 a.m.	11.30 p.m.	3.52 a.m.

		Average speeds, m.p.h.
2.40 p.m.	London to Carlisle	36
2.55 p.m.	London to Glasgow	38
6.00 p.m.	Glasgow to London	37
7.00 p.m.	London to Manchester	30
8.28 p.m.	Manchester to London	33
10.00 p.m.	Manchester to London	37
10.23 p.m.	Stockport to London	39
7.40 p.m.	London to Liverpool	36
8.30 p.m.	Liverpool to London	33

elimination of transhipment and the combination of the road and rail services considerable speeding up resulted. No fewer than 155 sections of this scheme are already in full operation, 73 in partial operation, and the remaining 35 in hand.

It is considered that unification of the railways provides growing opportunities for reorganising cartage, particularly in large cities, which should lead to economy and increased efficiency. A full interchange of cartage equipment now operates between Regions serving the same town, and the mechanisation of cartage equipment is also proceeding rapidly. Since January, 1948, there has been a reduction of some 2,000 horses in the British Railways stud, and the Railway Executive has placed orders for this year of 2,000 motor vehicles, of which 1,900 are articulated units and 4,000 trailers. More use is to be made of articulated vehicles using three-wheel motive units for town work and four-wheel motive units for longer range operations.

Town offices in London will in future be divided into two categories, one dealing with passengers and parcels and the other with goods traffic. There are at present three London town offices for passenger tickets and enquiries and eight more will shortly be opened. Unified representation has also been arranged at markets where separate representatives have hitherto been employed.

Schemes to Prevent Pilferage

Claims on British Railways due to loss and pilferage cost £2,671,383 in 1947 and were still rising. A special analysis was, therefore made and the vulnerable traffics ascertained. When it was found which traffics were the most liable to attack, security schemes were adopted, which had as their object the protection of those traffics throughout their transits from sender to consignee.

These schemes provided for the special collection and delivery of traffic, the segregation of traffic at stations including the use of wire cages, locking and sealing of railway vehicles, and re-routing to avoid congested areas coupled with intensification of police supervision at all stages of transit.

The following figures indicate the progress made:—

Quarter ended	Security schemes in operation
1948	
September	84
December	418
1949	
March	622
June	928
September	1,007

Present indications are that, as a result of the inauguration of these schemes and the co-operation of the staff, the reduction in claims payments on goods lost, stolen, and pilfered, as compared with last year, will be at the rate of over £1,000,000 a year. It is considered that, while British Railways are doing everything possible to deal with this problem, they will be greatly assisted in their efforts by the collaboration of their customers in using well-secured packaging and clear labelling and removal of old labels, making out consignment notes legibly, fully and correctly, and ensuring that a copy is in each package, being prepared to change despatching methods by collaboration with the railways if necessary, and not indicating contents of packages.

Last year, British Railways carried 115 million tons of general merchandise and minerals, apart from 161 million tons of coal, whereas in 1943 the railways carried 144 million tons of general merchandise and minerals, and 157 million tons of coal.

Notes and News

Skefko Interim Dividend.—The directors of the Skefko Ball Bearing Co. Ltd. announce an unchanged interim dividend of 5 per cent., tax free.

Chief Estimator Required.—A chief estimator, fully experienced in rolling stock construction, is required by a firm in Sheffield. See Official Notices on page 463.

Structural Draughtsmen Required.—Regional H.Q., British Railways (London Office), has vacancies for structural draughtsmen for the preparation of designs and detailed drawings of bridges and structures. See Official Notices on page 463.

Temporary Engineer Required.—A temporary engineer is required for alternate periods in the London Office of the Crown Agents for the Colonies, and the Colonies for a railway location survey. Candidates must be qualified civil engineers with experience in railway location work. See Official Notices on page 463.

British Railways Training Scheme for Permanent Way Supervisors.—The first of a series of courses for British Railways permanent way supervisors has been concluded at the Railway Executive Residential School at Derby. The course, which lasted three weeks, was attended by 49 supervisors and six instructors drawn from all Regions of British Railways, and the syllabus covered all aspects of permanent way work, including formation, ballast and drainage; maintenance and methods of renewals of plain track and switches and crossings; off-track maintenance responsibilities; and organisation and reporting. The course included practical demonstrations and visits to manufacturing yards and depots.

Free Enterprise and Government Control in Industry.—The September issue of *Steel News* contains an abstract of a paper given to the Newcastle meeting of the British Association by Mr. Robert Shone, Economic Director of the British Iron & Steel Federation. The paper stresses the amount of joint planning effort already put forth by the British steel industry, which increased efficiency, but left individual firms free to take their own decisions and to compete. The main function of Government was to secure a balance between supply and demand in the economy as a whole, to avoid either inflation or deflation. This would clear the way for healthy competition which, however, would not have free course in periods of inflation or slump. Government should help in matters, such as price control, which were better managed when there was no direct Government ownership in industry. Government planning could help to define the channels of private enterprise, while industrial organisations could contribute to efficiency by dredging those channels. A combination of planning and competition was needed. It was vitally important that the results of various experiments in securing the balance between them, as for example in the steel industry, should be carefully considered before they were replaced by some different arrangements.

Railway Students' Association.—A visit to Whitemoor marshalling yard, Eastern Region, has been arranged for Saturday, October 29, by the Railway Students' Association, London School of Economics & Political Science. The party will leave Liverpool Street Station at 8.20 a.m. and will return from March at 4.58 p.m.

Institute of Transport, Metropolitan Section.—On October 3, the first paper of the Institute of Transport, Metropolitan Section, 1949/50 session, was read by Lt.-Colonel H. Rudgard, on "Some Forms of Railway Traction." Forthcoming meetings to be held at Livingstone House at 5.30 for 6 p.m. are: December 5, "The Railway (London) Plan," by Mr. Ewan Evans; January 2, "Transport 1900-1950," by Mr. C. E. R. Sherrington; February 6, "The Transport Problems of the East Africa Groundnut Scheme," by Mr. M. Ormerod; March 6, "Road Safety at

British Railways Paris Office

Mr. T. D. Slattery, General Traffic Manager, Associated British & Irish Railways Incorporated, U.S.A., (left), with Mr. A. M. Newbold, Agent-General for France of British Railways, during a recent visit by Mr. Slattery to the Paris office

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

REGIONAL H.Q. British Railways (London Office) require Structural Draughtsmen for preparation of designs and detailed drawings of bridges and structures. Previous experience desirable. Good prospects of permanency for the right men. Salary from £350 to £480, according to age and experience. Applications stating age and details of technical education and experience to Box 485, c/o *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Crown Agents for the Colonies

ENGINEER (TEMPORARY) required for alternate periods in the London Office and the Colonies for a Railway location survey. Salary between £1,500 and £2,000 a year according to experience. Subsistence allowance also payable whilst actually serving in a Colony. Candidates must be qualified Civil Engineers with experience in Railway location work. Apply at once by letter stating age, whether married or single and full particulars of qualifications and experience and mentioning this paper to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/24987/3D on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

CHIEF ESTIMATOR required, fully experienced in Rolling Stock Construction; permanent post for suitable applicant. Superannuation scheme operating. Apply in writing stating age, experience and salary required to CRAVENS RAILWAY CARRIAGE & WAGON CO. LTD., Darnall, Sheffield, 9.

STATION DESIGN. A striking example of modern British practice at the important wayside station of Luton. Reprinted from *The Railway Gazette*, July 7, 1944. Price 1*s*. Post free 1*s*. 2*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2*s*. By post 2*s*. 2*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Home and Abroad," by Mr. J. A. A. Pickard. On November 7, 1949, the annual general meeting will be held at the Institute of Transport, 80, Portland Place, London, W.1, at 5.30 for 6 p.m., and Brigadier A. E. M. Walter will read a paper on "International Inland Transport." The annual dinner of the Section will be held at St. Ermin's, Caxton Street, London, S.W.1, on November 24.

London Midland Region (London) Orchestral Society.—An autumn concert of request items will be presented by British Railways, London Midland Region (London) Orchestral Society, on Friday, October 21. The concert will be held in the former shareholders' meeting room, Euston Station, at 7.15 p.m.

Fire in "Bournemouth Belle."—On Sunday, October 9, a fire broke out in the roof of the leading car of the up "Bournemouth Belle." British Railways, Southern Region, when travelling between Redbridge and Millbrook. The car was detached at Southampton Central and the train left 26 min. late and arrived at Waterloo 16 min. late.

Institute of Welding.—Mr. O. V. Bulleid, Consulting Mechanical Engineer, Coras Iompair Eireann, and former Chief Mechanical Engineer, British Railways, Southern Region, will read his Presidential Address to the Institute of Welding on October 25. The meeting will be held at 6.30 p.m., at the Institution of Structural Engineers, 11, Upper Belgrave Street, London, S.W.1.

Mr. John Elliot's Visit to Australia.—On Monday, October 24, Mr. John Elliot, Chief Regional Officer, British Railways, Southern Region, will read a paper on "A Visit to Australia and its Railways," to British Railways, Southern Region, Lecture & Debating Society. Sir Eustace Missenden, Chairman, Railway Executive, will be in the chair at the meeting which will be held at the Chapter House, St. Thomas Street, London Bridge, at 5.45 p.m.

Record Tourist Season for Great Britain.—The Travel Association (Tourist Division of the British Tourist & Holidays Board) stated recently that 1949 had been another record tourist year; traffic so far from North America had been equal to the best pre-war year and had shown an increase of 30 per cent. over 1948. The expansion in tourist traffic was expected to continue in 1950. Lord Hacking, Chairman of the Travel Association, stated recently that he thought devaluation should help to overcome complaints of high prices in Britain, but at the same time was likely to lead to a lower rate of dollar spending by individual American tourists. Although tourism represented one of the country's chief invisible earnings, receipts could not be expected to rise without new investment and expansion in tourist services. He had long advocated the building of new hotels in certain centres specially designed to cater for the visitor of today, and the construction of suitably adapted "motel" type accommodation in the National Park areas and in the most popular tourist centres. Such development was also strongly recommended by the American Under-Secretary of Commerce, Mr. C. V. Whitney.

Permanent Way Institution Film.—After receiving a first showing in York, a 16-mm. colour film, which has been made by the Permanent Way Institution to illustrate its history and activities, has now been shown in London, Edinburgh, Dublin, Manchester, Nottingham, Lancaster, Leeds, and Hull, as well as at other centres. The commentary is by Mr. H. S. Wood and camera work by Mr. J. Burton, both of the North Eastern Region Civil Engineer's Department, York. The development of the Institution since its formation in 1884 is shown, with scenes at the first meeting in the Granby Hotel, Nottingham, held by Midland Railway inspectors. The manufacture, inspection, and renewal of permanent way are a feature of the film and the section dealing with the Institution's activities shows scenes at the 1948 Convention.

New Transport Section of Thomas De La Rue & Co. Ltd.—Thomas De La Rue & Co. Ltd. recently announced the formation of a new section in its Plastics Division, to be known as the Transport Development Section. Mr. B. C. Randall has been appointed Sales Manager in charge of the section.

Powell Duffryn Limited.—Powell Duffryn Limited, whose colliery and ancillary interests are vested in the National Coal Board, is maintaining its payment on the £9,660,471 ordinary capital for the year ended March 31 at 8 per cent. with a final of 5 per cent., as for the previous year. Consolidated net profit for 1948-1949 is £652,106 (£939,176). It includes £100,000 (£268,893) not arising out of the year's

Indian Railway Officers Visit W. G. Bagnall Works

Mr. P. C. Mukerjee, General Manager of the Indian Railways Locomotive Building Works at Chittaranjan, and Mr. L. P. Madnani, Technical Superintendent, recently visited the Castle Engine Works of W. G. Bagnall Limited at Stafford to inspect locomotives being built for the Cutch State Railway. Left to right above are Mr. T. Stockton, Works Manager, Mr. L. P. Madnani, Colonel I. A. Marriott, Managing Director, Mr. A. R. Robertson, Locomotive Manufacturers' Association, Mr. Mukerjee, and Mr. H. Davies, General Manager

trading, after charging depreciation £254,358 (£251,294) and taxation £940,077 (£1,065,255). Nothing has been included for interim income under the provisions of the Coal Industry (No. 2) Bill for the three months to March 31, 1949. The amount to be carried forward is £2,130,922, compared with £2,241,709. The latter figure included £168,527 credit balances of subsidiary companies, since transferred to reserves on the liquidation during the year of such companies.

Forthcoming Meetings

October 14 (*Fri.*).—Institution of Railway Signal Engineers, in the London Transport Signal School, Earls Court Station, S.W.5, at 6.15. p.m. "Layout of Signals," by Mr. W. H. Challis.

October 14 (*Fri.*).—Railway Club, 57, Fetter Lane, London, E.C.4, at 7 p.m. "The Bergen-Oslo Railway," by Mr. H. A. Vallance.

Until October 15 (*Sat.*).—National Packaging Exhibition, at the City Hall, Deansgate, Manchester. Open 10.30 a.m. to 7 p.m.

Until October 16 (*Sun.*).—International Container Exhibition, in Salon de l'Emballage, Exhibition Centre, Porte de Versailles, Paris.

October 17 (*Mon.*).—Institute of Traffic Administration, Merseyside Centre, at the Adelphi Hotel, Liverpool, at 7.30 p.m. "Passenger Transport," by Mr. J. McMillan.

October 17 (*Mon.*).—Institute of Transport, at the Jarvis Hall (R.I.B.A.), 66, Portland Place, London, W.1, at 5.30 for 6 p.m. Presidential address by Brigadier-General Sir H. Osborne Mance.

October 18 (*Tue.*).—Federation of Railway Lecture & Debating Societies, North Eastern Region, at the Railway Institute, York. Address by Mr. Alfred Barnes, Minister of Transport.

October 19 (*Wed.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. Presidential address by Mr. W. Cyril Williams.

October 19 (*Wed.*).—Railway Students' Association, London School of Economics & Political Science, Houghton Street, Aldwych, W.C.2, at 6.30 p.m. Presidential address by Mr. John Benstead, Deputy Chairman, British Transport Commission.

October 20 (*Thu.*).—British Railways, Western Region, London Lecture & Debating Society, in the Clerks' Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. "The History of the Permanent Way," by Mr. E. C. Cookson, Assistant Engineer (Permanent Way), Western Region

October 20 (*Thu.*).—Institution of Mechanical Engineers. Annual dinner at the Dorchester Hotel, Park Lane, W.1, at 7 for 7.30 p.m.

October 20 (*Thu.*).—Diesel Engine Users Association, at Caxton Hall, Westminster, London, S.W.1, at 2.30 p.m. "A Comparison of Cylinder Liner Wear Under Basehead and variable Output Operating Conditions," by Mr. Robert P. Kay.

October 21 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. Presidential address on "Engineering Steels under Combined Cyclic and Static Stresses," by Mr. H. J. Gough.

Railway Stock Market

There have been sharp movements in stock markets where sentiment was swayed by conflicting factors rising from continued rumours of an early General Election and vague talk that an increase in the Bank Rate may prove inevitable next year. This suggestion of a higher bank rate was not regarded seriously in responsible quarters, but it was sufficient to upset the gilt-edged market, and losses of over £1 were recorded by long-dated stocks earlier in the week. An increase in the bank rate would in all probability mean an end of the cheap money policy, which it is pointed out might be a dangerous course until the dollar gap has been closed and export trade established at a considerably higher level. It is possible, of course, that if inflation were to assume dangerous proportions, a higher bank rate might become inevitable as a step to check spending by the public and industry; but this might have serious repercussions because it would mean a big increase in the cost of financing industry. Before drastic measures of this kind come into the picture, there are many other steps which can be taken to check the inflation danger. According to some views, an autumn Budget and more taxation are not improbable if there is to be no early election and the Government feel that more immediate checks to inflation are advisable.

Contrasting with the reaction in British Funds, leading industrial shares rallied and various views have been advanced for this. In some quarters it is pointed out that from the investment angle, leading industrial shares are a hedge against inflation which would increase the value of plant and other assets and would be reflected in share prices in due course. Moreover, the buying of industrial shares which developed earlier this week was due in part to the view that if the Government were defeated at the election, controls would be abolished on a wide front and there might also be an end of dividend limitation.

As was to be expected, nationalisation stocks have fallen back with long dated British Funds. Transport 3 per cent. (1978-88) has fallen to 91⅞ at the time of writing and 3 per cent. Transport (1968-73) to 94⅞; Gas 3 per cent. declined to 90¼ pending the issue of a further block of this stock.

A general fall in Brazil rails has been the feature in foreign rail stocks, fears having grown that latest developments in Brazil may mean that take-over agreements in respect of Leopoldina and Great Western of Brazil may not be ratified until next year, and that an attempt may be made at this late hour to modify the terms in favour of Brazil. Debenture stocks were most affected. Leopoldina 6½ per cent. falling heavily to 123, while the 4 per cents. were down to 84, the preference stock 25 and the ordinary 8½. Leopoldina Terminal 5 per cent. debentures slumped to 93, and Great Western of Brazil £10 ordinary were only 130s.

In other directions, United of Havana 1906 debentures remained firm around 28, pending the further official statement promised on the negotiations already reported. Manila Rail stocks, however, turned easier, the "A" debentures being 88 and the preference shares 7s. 9d. Elsewhere, Antofagasta ordinary and preference at 7½ and 41 respectively were also easier. San Paulo 10s. units at 13s. 6d. have dropped back in sympathy with other Brazil rails, fears having grown that it may be well into 1950 before there is a settlement of the company's additional compensation claims. Canadian Pacifics at 25⅛ failed to hold best levels.

Road transport and bus shares turned easier on the prospect of an increase in petrol and oil prices, and B.E.T. deferred stock fell back sharply to £1,500. Southdown, however, recovered to £6, and Lancashire Transport were 79s.

Iron and steels have reflected the better trend in industrials with United Steel at 26s. 7½d. awaiting the financial results, Colvilles rallied to 33s. Stewarts and Lloyds to 53s. 6d. Guest Keen to 40s. 3d. and Babcock & Wilcox were 63s. Shares of locomotive builders and engineers moved narrowly. Vulcan Foundry were 20s., North British Locomotive 19s. 7½d., Beyer Peacock 19s. 10½d., Wagon Repairs 17s., but Gloucester Wagon jumped 2s. to 52s. Elsewhere, Charles Roberts were £6⅞ and North Central Wagons 12s. 6d.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1947/48	No. of week	Aggregate traffics to date: Total 1948/49	Aggregate traffics to date: Increase or decrease
South & Central America	Antofagasta...	811	25.9.49	£ 63,570	+ £ 2,670	38	£ 2,520,410	+ £ 446,080
	Costa Rica ...	281	July, 1949	35,287	− 6,345	4	35,287	− 6,345
	Dorada ...	70	July, 1949	29,403	− 4,063	30	200,008	+ 24,342
	G.W. of Brazil	1,083	21.5.49	19,200	− 10,600	20	755,800	+ 1,200
	Inter. Ctl. Amer.	794	Aug., 1949	$1,023,467	+ $26,568	35	$8,601,268	− $568,351
	La Guaira ...	22¼	Sept., 1949	$108,255	+ $6,733	39	$967,478	+ $28,622
	Leopoldina ...	1,902	28.5.49	43,288	+ 3,864	21	965,094	− 155,382
	Nitrate ...	382	30.9.49	18,744	+ 4,633	39	340,339	+ 108,416
	Paraguay Cent.	274	30.9.49	₲142,454	+ ₲44,976	13	₲1,868,579	+ ₲544,540
	Peru Corp.	1,059	Aug., 1949	246,670	+ 74,521	9	473,214	+ 122,033
	Salvador ...	100	May, 1949	c94,000	− c9,000	48	c1,884,000	− c6,600
	Taltal ...	154	Aug., 1949	9,335	+ 3,840	9	19,995	+ 4,490
	United of Havana ...	1,301	11.6.49	$231,311	+ $14,746	49	$13,733,928	− $4,659,951
Canada	Canadian National...	23,473	Aug., 1949	10,655,750	+ 545,750	35	80,200,500	+ 2,524,250
	Canadian Pacific ...	17,037	Aug., 1949	7,719,000	− 16,500	35	58,840,750	+ 3,443,750
Various	Barsi Light* ...	202	Aug., 1949	21,465	+ 735	21	155,467	+ 20,730
	Belra	204	Feb., 1949	104,917	+ 6,180	22	589,461	+ 9,141
	Egyptian Delta ...	607	20.8.49	18,145	+ 784	20	255,747	+ 5,668
	Gold Coast ...	536	Aug., 1949	258,530	+ 101,174	22	1,192,125	+ 173,678
	Mid. of W.Australia	277	July, 1949	20,862	+ 3,125	4	20,862	− 3,125
	Nigeria	1,900	July, 1949	489,380	+ 15,057	16	1,771,747	− 24,882
	South Africa ...	13,347	17.9.49	1,460,737	+ 83,891	37	35,916,524	+ 3,703,836
	Victoria	4,744	May, 1949	1,513,772	+ 65,626	48	—	—

* Receipts are calculated @ 1s. 6d. to the rupee